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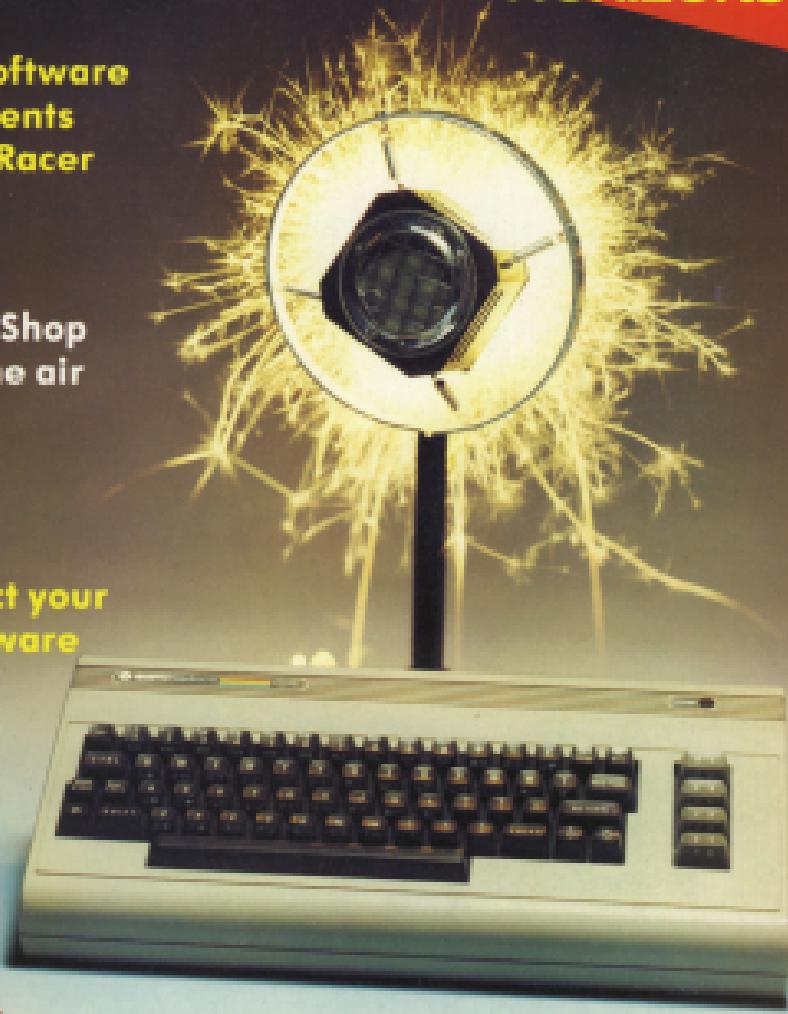
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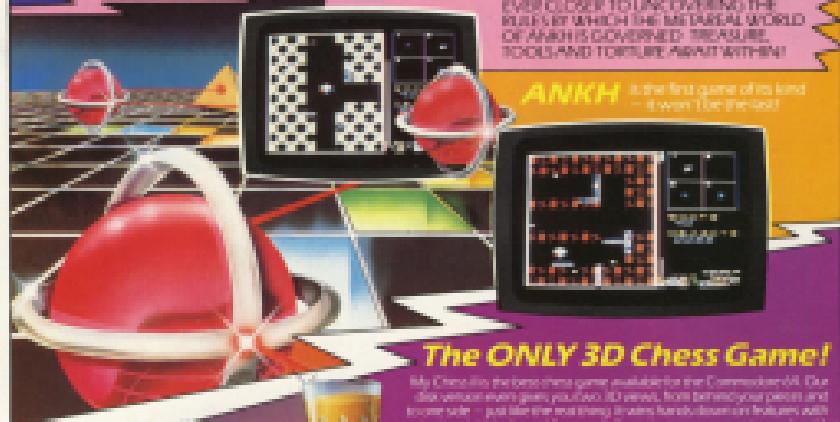
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Editorial Team
Assistant Editors
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Administration
Theresa Lucy

Managing Editor
Duncan Scott

Publishing Director
Jonny Ireland

Telephone Number
Call department
01407 4740
UK address

Commodore Horizons, 22-23 Little Newport Street, London WC2B 4LP.
15 address

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ABC

Submitting articles

Commodore Horizons welcomes readers' contributions — either articles or program listings. Articles should be typed double-spaced with a wide margin. Programs should, whenever possible, be printed out on plain white paper, accompanied by a cassette. We cannot guarantee to return every article or program submitted, so please keep a copy. If you want to have your program returned you must include an S.A.E.



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EDITORIAL

COMPUNET IS THE latest in a small, but growing, number of databases designed to serve home micro users. Unlike its main rival, Microsoft 880, CompuNet only serves Commodore users, though the range may be expanded later.

For £90 you receive a 1280x73 1200x1200 monitor, the necessary software protocols and one year's BBS subscriptions to CompuNet. You will be able both to upload your own messages and programs, and download free and commercial software. The monitor will also help to prevent piracy, since downloaded software will only run on the micro used to access the program.

CompuNet plans to offer a number of different services, including teleshopping, telebanking and even telepublishing. A range of information providers will be invited to contribute to the system, as will the software houses.

However, CompuNet's predecessor, notably CompuServe, The Source and Microsoft, have had only limited success. Microsoft, for example, was launched in March 1983, but 18 months later only has about nine and a half thousand subscribers. This technology may be here, but the great leap forward still has to be taken.

In part, this is due to the price of modems. The number of people likely to subscribe to networks such as CompuNet would be a great deal higher if modems cost £50 or less. However, the price of modems does appear to be drifting downwards, albeit slower than we would like.

The other reason why networks have so far failed to realize their full potential is that they have not really made use of the medium on which they are based. Networks do not for instance facilitate what will allow users to link up with each other and with databases. A network which just initiates the post office or the yellow pages is only displaying services which already exist.

What is needed is imagination, and the perseverance to make the imagination work.

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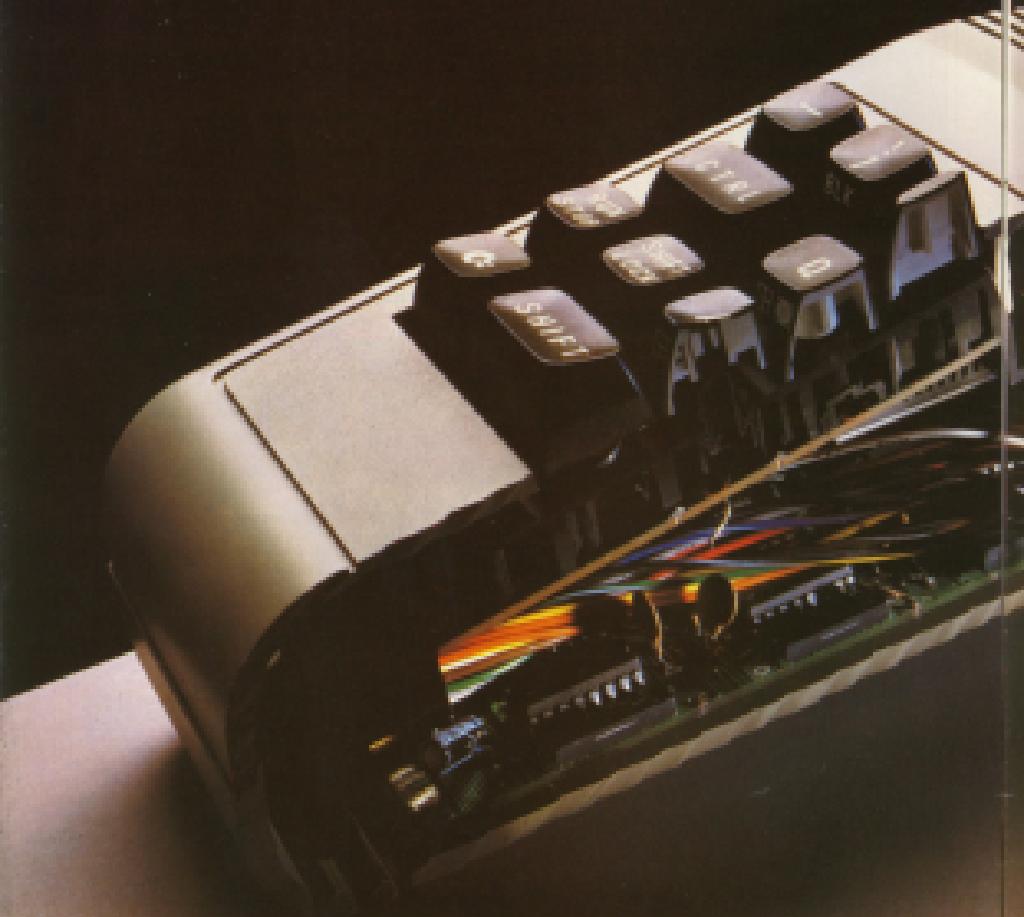
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Commodore Graphics offer ten readers the chance to win copies of Party Pigeon and Moony Mania.



Are you only using

To-only play games on a Commodore computer is like asking Albert Einstein to work out the square root of four.

The computer's brain barely ticks over.

To really scratch it, you need more interesting software programs. For example, record keeping, interactive education, stimulating adventure games or word processing.

And for all those you need peripherals.

Like a Commodore disk drive, a really fast storage and retrieval system with a vast memory. Or a Commodore cassette unit, the inexpensive way of loading and storing programs.

For those who like the idea of text and graphics being more alive and having greater clarity than on a TV, there's the Commodore colour monitor.



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THE SOFT STUFF

LETTERS

PAGE

Dataview address

I READ with great interest a news item under the heading of "DATAVIEW VALUE" in the September issue of *Commodore Hobbies*.

I shall be grateful if you could correct two points—first both the products mentioned in the news item are published by a new company, Dataview Woodcraft Limited and secondly the address of Dataview Woodcraft Limited is 8a St. Rad's House, 8a St. Rad's, Gloucester, Gloucester, Telephone No. (0299) 885414.

Andy Fox
Marketing Manager
Dataview Woodcraft Ltd

Postscript. Follow this by entering **LIST** then load or type in second section of program, then enter again in **DIRECT MODE** (Poke4), 1,Poke4,1.

When **LIST** is now carried out the two sections of program will have merged and can be RUN as one program.

This is also possible on the Vic 20 if you first PrintPoke4030 and PrintPoke4040 then enter the first **DIRECT** commands as previous. Follow this by entering second section of program and then enter again in **DIRECT MODE** Poke4030Poke4040 where X and Y are the values obtained previously.

The line numbers for the two sections must be consecutive as any overlapping will cause duplicate existing line numbers.

Kevin E. Morris
Playgroup
Tunbridge

I don't expect you to print this letter in your magazine and even if you do I won't use it, because after all the hours of taping my hair out I will not be buying your magazine ever again.

Yours Angry
MD J. Rodgers
West Malling

All Commodore Hercules software files programs are received on cassette, loaded, checked, printed out, and the printout is reproduced photographically. This doesn't leave much room for mistakes. Since Mr Rodgers wasn't so reading this, perhaps one of his schoolfriends will explain this to him.

We just don't like to hear our own trumpet!

Castlepoint club

MANY THANKS for your excellent magazine. It's a pleasure to have trouble free listings.

I have only been taking your mag for three months but I am frightened to ask about back copies. When did you start?

I would be pleased if you could mention our club. It's just been formed and would like more members. It's the Castlepoint Commodore Computer Club.

The club offers a rental library, bulk purchase offers, savings and excellent teaching by a brilliant young man, Edie Clocker.

Membership is £10.00 per year, £12.00 if you are married, and £5.00 for visiting which is forthcoming.

J. Edie
Edie Clocker
Caversham
Berkshire

ALL BACK issues of *Commodore Hobbies*, apart from the first, Dec 83/Jan 84, are available from our subscriptions department.

This is the chance to air your views — send your tips, complements and accomplishments to Letters Page, Commodore Hercules, 93-95 Little Mortporth Street, London NW10 2SD

Merge solved?

A SUGGESTION I would like to make, regarding a query J.D.W. Stansbie of Devon made in your Answer Back section regarding merging of listings, is that it is possible to overcome this problem without the need to purchase any specific software.

On the Vic carry out the following— Load or type in first section of program then enter in **DIRECT MODE** Poke4030, 1,Poke4,1; Poke44,

Mister Angry

HAVING purchased your magazine for some months I decided to try some of your programs for my Vic 20. Having spent a number of hours trying and checking they still won't run. I have checked them over and over again and I am 100% sure that they are as they appear in your magazine. I have tried them on three machines and all I get is a mass of symbols on the screen.

Among the routines listed are "MERGE", "RENUMBER" and "DELETE". At a cost of £3.95 this represents a much greater value than any software package, particularly as there are many other useful routines in the book.

W. J. Chisholm

BPO 11



Making micro music

THE CAPITAL Region Information Centre, part of the Micro-Electronics Education Program, is producing a booklet for music teachers and students entitled "Microcomputers and Music Education".

Following an introduction to the subject, the booklet will contain a list of useful software and hardware currently available, with a full section on the Commodore machines.

Organiser Nick Pickles said that despite the Commodore machines not being approved for use in schools by the Department of Mechanical and Electrical Engineering of the Inner London Education Authority, any information on the subject would be greatly received.

To contribute information or get hold of the booklet, which should be available in September, contact Nick via the Music Department, Middlesex Polytechnic, Trent Park, Crouch End, North London.

Mermaid launches disk doctor

NEW COMPANY Mermaid Software has launched the first of a series of educational and utility programs.

Mermaid is compatible with the 1541 disk drive and all 1541 format drives including the Petkey (1516).

It's a disk repair program which will retrieve corrupted data, recover data from disks with slight physical damage, and allows the data to be saved on a new disk which is given an identical header.

Mermaid's Harold Wolpert describes the utility as "an invaluable utility for serious disk users, saving hours of work in cases where disks are damaged or worn by excessive use."

Mermaid comes with a free blank disk as well as the main

GAME CREATOR, from Mirrortech, is the latest in a line of programs designed to let non-programmers produce games.

Launched at the PCW show, the 44 Game Creator is written by David and Richard Darling, authors of the Galaxie Games Designer for the Vic 20.

Games Creator comes with three games ready to play: Bounce, Hawk Patrol and Snake Pit, which cover maze, platform and Scrabble-type scenarios. The program is menu-driven, and allows you to specify the type of alien used, movement patterns,



backgrounds, shooting rules, sound effects, music, sprite shapes, explosions and so on.

Mermaid's Jim Mack-

ouchie commented: "Games design languages like BPP's Scope are excellent in their way, but for users who don't want to learn a new language we've put together Game Creator. We think it will be a big success with game players of around 12 years old and upwards, but we've also found that it's a help to more advanced programmers who want to try out game ideas before writing original programs."

Game Creator costs £12.95 on cassette and £15.95 on disk; contact Mirrortech, The Mirror Group, Halton Circus, London.

Eureka! — £25K reward

EUREKA!, an epic swords-and-sorcery adventure from new company Domark, looks likely to set new standards of complexity — and there's a £25,000 "prize" on stake for the first person to complete it.

Domark's Michael Bradley — grandson of author Dennis — and Mark Stenhouse have set up the company with the intent of "marking the talents of many people like works of art." Eureka! consists of five adventure games, written by Fighting Fantasy author Ian Livingstone, and five arcade games. All the coding has been done by the Hungarian programmers of Andromeda Software.

The game is released in a single £94.75 package on October 21st, and any mail order made before that date will have a guaranteed delivery date, so as to give it fair chance to all purchasers. Eureka! will be released in shops at a later date.

The epic contains around 1500 of coding, and operates on a multi-level principle. Completing each arcade section allows access to the next part of the adventure, which is set in five different periods of history — Prehistoric Britain, Roman Britain, Celtic Britain, World War Two Germany, and the present day Caribbean.

Your mission is to find the shards of a shattered moon crystal, and the reward of

£25,000 will be paid to the first person to achieve this.

Domark's Wheatley said "we're keeping future plans fairly secret, but some of my grandfather's books would lead historians well to computer games, and we might also do something based on a certain character. There's very little limit to the ability of Andromeda Software's programmers!"

Contact Domark through Tigris PR, 127 New Park Road, Putney, London, phone 01-771 1136.



Michael Bradley — get it

Elite on the street

MINI SOFTWARE company Elite have plans to dominate the Christmas market with two games releases based on US television series currently popular in the UK.

Elite's first release, the eponymously-named *Elite: The Game*, is a multi-player arcade adventure in which the hero has to recover all the pieces of the missing *Dragon Amulet*. There are over 60 levels, and the program is being marketed as a rival to the popular *Jet Set Willy*.

Elite's forthcoming releases are *Blooded* (from 20th Century Fox and Warner Brothers, and

are based on the TV series *The Fall Guy* and *The Duke of Hazzard*. Elite spokesman Steve Wilson said: "We think American programmes are a better bet than British ones, since they seem to appeal to the same sort of people who play computer games. Although these titles have been licensed from America, the software is British. We're hoping that *The Duke of Hazzard* will be the Christmas number one game."

Elite games for the 64 will cost £49.95 on cassette and £29.95 on disk. Contact Elite at 39 Headland Steps, Walkill, 0822 811215.



Elitesoft 1987 — gamma for Jet Set Willy

The Cheetah, the RAT and the Interpod



Analysed — saved by Cheetah Marketing

PARC ELECTRONICS, one of the UK's leading electronics sub-contractors, has taken over the sole marketing and manufacturing rights to Interpod, the intelligent interface for the 80 and Vic developed by Oxford Computer Systems.

OCS has recently experienced financial problems, and through the future of the computer software for which the company is best known has not yet been decided, Interpod sources say. Parc will be marketing the unit, which

provides RS-232 and IEEE interface facilities, through Cheetah Marketing, another recent acquisition. Price will be set to £29.95.

Cheetah is best known for a range of software and hardware for the Spectrum computer, but C64 related products are in the pipeline. The first will be an infrared cableless joystick, R.A.T., which is claimed to have reached up impressive pre-launch orders, with the launch set for the start of September.

The computer game is DEAD...

Words for free

SOFTWARE Publisher Dataview Woodsort Limited, producer of the Woodsort 30 program, has produced a free eight-page brochure summarising the benefits of word processing.

The full-colour booklet explains in straightforward terms some of the jargon associated with the subject, and deals with the ways in which wordprocessing can make or save money for small businesses.

For your copy, write to Alan Hoop, Marketing Manager, Dataview Woodsort Limited, Rock House, 100 Street, Colchester, Essex CO1 2SA.

What's Woodsort?



Dataview's Woodsort

Stack cuts cartridges



Stack's stackable and programmable cartridge

COMMODORE 64 software and hardware producer Stack Electronics has cut the price of its Programmers And cartridge for the 64. The series of cartridges provide utilities such as Basic optimisations, fast tape operations, and two page assemblers. The cartridges are recommended for use with Stack's four-slot motherboard.

Also newly announced is the Stack 100 series computer-based cartridge. Priced at £14.95 including VAT, it's intended to achieve more professional programming through speeding up Basic software.

Contact Stack at 290-298 Derby Road, Bootle, Liverpool, L20 8LA, phone 051-819 5511.

Cumana talks tape drives

DATA ENTRY manufacturer Cumana, previously best known for its Dragon micro peripherals, will launch a "floppy tape" drive for the Commodore 64 and Vic 20 in October.

Development engineer Carl Abson described the system as being "similar to the Winflope system available for the Spectrum, but a totally independent design."

The floppy tape system works using long microcartridges containing 160k inch tape. Various lengths of tape will be available on the microcartridges, with a 50 foot tape going around £1 and having a 10k capacity.

Retail price should be about £180, with an option of connecting another drive at a lower price, as yet unspecified.

The onboard processor will allow the Cumana drive to be connected directly to the Commodore machines with no special interface.

Contact Cumana at Pine Trading Estate, Broad Street, Guildford, Surrey, GU1 3RA, 0483-300121.

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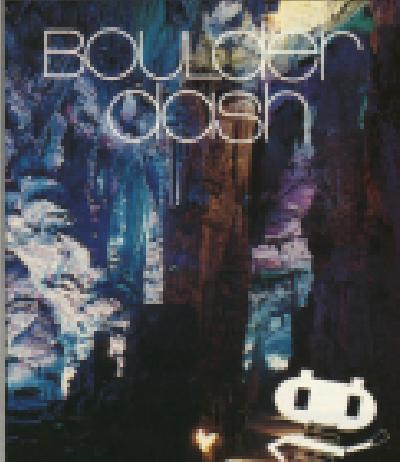
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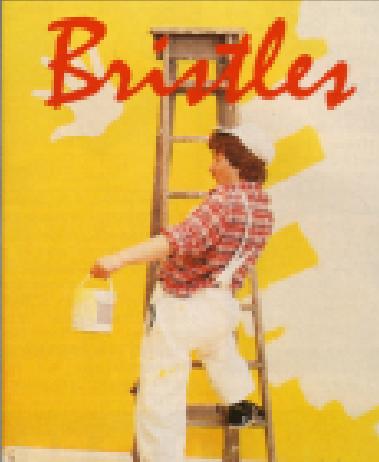
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THE CHIP SHOP

— sending software on the airwaves

A new Radio 1 computer show and a revised Esperanto for micros — Trevor Taylor explains all to Chris Jenkins

THE "BROADCASTING" of software — now a familiar concept due to the growth of networks such as Computer and Microsoft — is also possible in a much more direct form. Transmitting audio signals on ordinary radio wavelengths is also possible, though Trevor Taylor met with some scepticism when he first mooted the idea.

"At the time I was working in BBC television, and it occurred to me that if home computers record software on ordinary domestic cassettes, which are fairly poor in quality, considering the quality of our broadcast chain is high we should be able to broadcast software. On *Transmitter's World* we often reported on other people's inventions, and I thought it would be a good idea if we did some inventing ourselves."

Trevor's idea was to broadcast ten seconds of audio signal which viewers could record and load into their computers. "The producer wanted to keep down the amount of this horrendous noise, and decided that ten seconds was all an early evening audience watching the *Top of the Pops* would tolerate — though there were those who thought it may better than some of the things *Top of the Pops* was putting out!"

Resolution

Though some experts had advised Trevor the system wouldn't work, and others thought it would, the only way to find out was to try it. Two ten-second programs, for the Apple and the ZX80, were to be transmitted, though everything did not go as planned. "The transmission, in December 1982, was live, and of course it wasn't possible to retransmit it. It didn't work in the studio, because we set up a simulation of the program the viewers should have picked up, but the presenter failed to wind the tape back to the start. As a result the audio chain didn't work, and we passed on to the next item. However, the broadcast transmission worked fine! Before the program was off the air we started getting phone calls telling us that the program worked, and by the following Monday we had hundreds of mail, many of the letters including ratings of the program. The system proved to be fairly robust;

many people had just placed a microphone in front of the TV loudspeaker, following the instructions in the *Radio Times*."

The program, written by Trevor, required the viewer to type in his name, which then appeared along with those of the transmitter's World team in a scrolling credits display. It was a fairly simple start, and the big problem was that the programs had to be machine specific.

"I then discovered that the Dutch network NOS had been doing this for some time, and had been working on Basimode, a system by which you could run programs on a wide range of computers. The demand

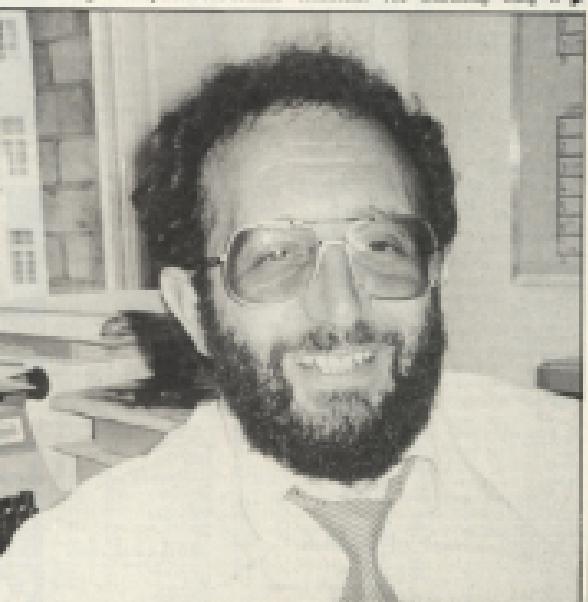
for more useful programs which had been presented by the *Transmitter's World* transmission gave me the idea for The Chip Shop, combining the idea of transmitting software regularly and looking at applications as well as hardware."

Hobbyshop

Trevor travelled to Holland to talk to NOS, and found that the Dutch program Heimweeshop had been transmitting software designed to appeal to electronics hobbyists. "They tended to be technical, and The Chip Shop wasn't going to be that sort of program. Basimode, the Esperanto of computers, was developed by an NOS technician, a Philips engineer and a programmer with the Dutch equivalent of the Open University. The first version of Basimode had a lot of problems, many of which were overcome with Basimode 2. We're now announcing the release of Basimode 2+ in September, upgrading Basimode 2 in two areas: firstly in the number of machines it supports, and secondly in the look of it — there are now more menu-driven programs."

The Dutch Basimode always allowed for the Commodore computers, but not for the less popular Sinclair Spectrum, BBC Model 2+ nor even the Commodore 64, the Vic 20 (plus 300), and the 3000, 4000 and 5000 series machines, as well as many other popular micros including Acorn, Oric, Dragon, MSX and so on.

"We've also revised the manual, putting it through one technical editor so that it's consistent. The interesting thing is [p



Trevor Taylor — "There should be much more computer coverage"

■ that part of the licensing deal with BBC is that we are required to produce *Barcode* at no profit. That's why the board, and the cassette costs only £1.95, which is our production cost, and why it's sold through the Broadcasting Support Service, which is a non-profit making registered charity.

The first series of *The Chip Shop*, fronted by popular TV personality Barry Norman, took some of the BBC's programs and tried to establish the sort of software titles listeners wanted.

"The general reaction was that people weren't too interested in games — they wanted useful programs, though they didn't always tell us what they meant by 'useful'. For the new series we're aiming to broadcast programs which incorporate the demand — they either perform some function which allows you to calculate something, or they're interactive in some way."

Trevor maintains that the over-reliance on games is not an indication that *The Chip Shop* misses the younger audience — "The last program we transmitted included a questionnaire, and from the replies we think the age range covered is very broad — young users to pensioners. *Barcode* is not very good at doing games anyway, since the graphics and sound capabilities have to be cut to the lowest common denominator."

Possible future plans include building up a software library, putting out a program each issue which listeners can use as building blocks for larger programs.

Radio 1

One disadvantage of the first series of *The Chip Shop* was that the software had to be transmitted at a different time to the editorial content. "The software was transmitted at 21 minutes past midnight, four nights a week on Radio 4, principally because we couldn't broadcast for very long at peak times. It raised problems in

that many younger listeners couldn't stay up that late to record the signals, so we're now partially overcoming the problem. The new series, starting in September, will have the software transmitted early in the morning, on Radio 1 starting on 20th September at 0515. The transmissions will be repeated the following Saturday at 0515. We think it's socially more acceptable to get up early rather than to stay up late."

Independent

Even though licensing figures for the last series are about 1 million, and with the addition of the Radio 1 slot for the new series this figure should double, the only sure transmission costs will probably be transmitted at peak times. Even Radio 1 listens to the new slot on Saturday mornings, at 7.10 or 7.45am, wouldn't stand for it! The new 12-minute slot in the *Mark Page Show*, presented by David Freeman, will give a few brief computer news stories and plug the *Barcode* transmission on the following day. The Radio 4 *Chip Shop* will still be presented by reliable Barry Norman, though Radio 4 will no longer be transmitting the software.

The *Chip Shop* suffers from the disadvantage of being a BBC programme which must demonstrate independence from the BBC computer. "It's a potential minefield for us to go on air and criticize a machine, because we'll be accused of favouritism towards the BBC. For that reason we did very little about hardware specifically in the first series."

Trevor tries to iron the BBC computer in being produced by an entirely separate company. "I think it's very important that the BBC's commercial interest in one machine should have no effect on the editorial content of *The Chip Shop*, and there's been no pressure put upon me to plug the BBC machine. It's up to me to demonstrate the *Barcode* is of our independence."

Partly for this reason *The Chip Shop* tends to concentrate on applications rather than "kit". "As far as the Commodore machines are concerned, I don't feel there's any love or hate in British flag — if the new machines are interesting we'll take a look at them, and if they're good we'll say so."

"We're also in a very different position to a computer magazine, because we have no appeal to an audience which has no necessarily switched on, because they're interested in computers. Frankly the magazines are in a much better position on the review of new equipment than we are — they can devote several pages to it, with pictures, whereas I may only be able to give it two or three minutes."

Format

The new *Barcode* 2+ has been developed by *The Chip Shop*'s own software engineer with the extensive cooperation of the manufacturers of the machines involved. "We also sometimes contract outside programmers for particular jobs."

The new Radio 4 series features a letter slot, a revised format for news headlines, and three-second reports from Tokyo and

California. "Aside from that we're sticking very much with the successful format. There are a couple of specials, the first of which is our second week on the air, the 12th of September, when we're planning a very large outside broadcast from the PCB show in Olympia. We'll have a big stand, and we'll be organizing a number of events which will be recorded and edited for display. One feature is an All-Satellite slot in which a panel of industry celebrities will be available to answer audience questions, with special listeners on small businesses, journalism and so on. The other special we have planned is a live outside broadcast from Scotland — a sort of Silicon Glens report — and on the 3rd and 10th of November we hope to be live from Tokyo, though that's not yet confirmed."

The Chip Shop consists of Trevor, plus two production secretaries, a reporter, a manager, a software engineer, a reporter clerk and the two presenters Barry Norman and David Freeman. The three offices in the BBC's Langham building — used to be demolished to make way for a new broadcasting centre — are packed with computer equipment and stacks of software and press releases. With 120,000 listeners generated by the last series, it's amazing that there isn't more time and resources devoted to computer programs.

Response

"For the first two weeks of transmission we topped the response charts — people were clamouring for the *Barcode* kit. *Barcode* hadn't even been published, except on the program, through a couple of magazine articles and a feature on ITN. We couldn't afford to advertise *Barcode* through something like the *Radio Times*, due to the expense involved, but we're still looking at various ways of publicizing it — we're keen for people to fill in order forms rather than just write in to us, since we're anxious that people know exactly what we're offering. All BBC presenters will have order forms, and we're going to try a printed name card of periodical — but weekly half-pages in the *Radio Times* would cost tens of thousands of pounds."

For the moment you should contact Broadcasting Support Service, PO Box 7, London W1 6XJ, for more details on *Barcode*. Each pack contains a manual explaining what *Barcode* 2+ is and what it can do, how to write *Barcode* programs, and how to load broadcast software. The cassette includes translation programs for all the machines covered — you just load up the cassette for your machine, and tune in to *The Chip Shop*.

Future plans may include *Barcode* 3, which may handle sound and graphics better — and a TV series! "I think there should be much more computer coverage — more radio programmes covering more specific subjects, in a TV series — but I don't have that's space for *Barcode* transmission on TV. Television would be a natural progression, and the broadcasting of software is only one part of what we're doing, and not necessarily the most important part — it's just the one which has caught people's imagination." ■



Barry Norman — Radio 4 host

Mega-zap



THOUSANDS of 64 owners like nothing better than a "classic" good megazap! — or here's one, Zzap 7 from the very capable Mogul is claimed to be a version of an American arcade game, brought out as software before it hits the arcades. It's programmed by Mike Wacker of Fire Ant Games.

Forgetting the tedious details of bullet-powered position accelerators and Zzap-ian defence spheres, when you're left with is a "through-the-walls" game of various effects. On-screen readouts indicate your pod's status as you fight off the hordes, which manifest themselves in waves of various numbers and shapes, including the good old Starship Enterprise.

There's not much more to say about Zzap 7 — it's very straightforward, with some good sound effects and excellent scrolling backgrounds. A good but far alien-busters.

Program: Zzap 7, 64

Supplier: Mogul, 90 Regent Street, London

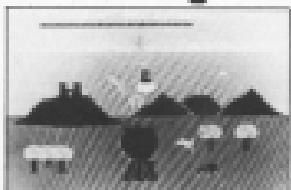
Price: £7.99

Graphics: 7

Sound: 5

Gameplay: 6

It's magic



WYKE VALLEY SOFTWARE'S Martin owns something no Ultiman's Pet Pac, of that the object of the game is to fly around the screen picking up treasures and depositing them safely. There the similarity ends, in that Martin depicts you as a cloud-riding wizard rather than a jet-powered spaceman. The forces of Evil set out to stop you, and to combat them you must ring magical lightning bolts and collect seals, gems, Thor's hammers and so on to power your pet. It's feasible manage to parachute into the pet when your base is ruined. A good game, the only reservation being that each of the four screens is basically similar. Still, well worth having.

Program: Martin, 64

Supplier: Wyke Valley Software, Parson House, Kinnerley, Herefordshire

Soft *Hits*

The good, the bad
and the ugly reviewed by
our hard-playing team

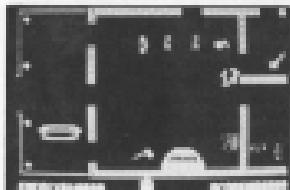
Price: £5.99

Graphics: 7

Sound: 6

Gameplay: 6

Gothic, novel



THE EVIL DEAD is the first release from the distributor Palace, and has received a lot of media attention due to its associations with the splatter movie of the same name. Fortunately the game itself is all good healthy fun, and though there aren't any great surprises it's the kind of thing which can keep you playing for hours.

An introductory blurb explains the scenario: a horde of zombies have viewed from above, in which you must protect your four friends and yourself from attack by the spirits of the Evil Dead. Various weapons can be picked up to help you in your fight, but beware possessed human split into four fearsome segments.

The battle to avoid dismemberment is

fast and furious, and overall Evil Dead is an excellent debut from Palace Software. Great spooky Gothic music too.

Program: The Evil Dead, 64

Supplier: Palace Software, 273 Pentonville Road, London

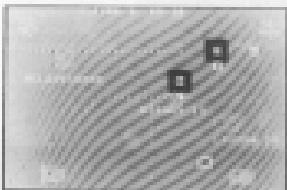
Price: £5.99

Graphics: 7

Sound: 7

Gameplay: 8

Half and half



WITH STRATEGY and simulation games rapidly overhauling straight shoot-'em-ups in the popularity polls, it's no surprise to see that some of the best games now coming out combine elements of both forms.

Catch Battle of Midway from PSS and you'll see a perfect example. The game is a simulation of the crucial WW2 USA/Japan air-sea engagements. The manual — which I've seen only in preliminary form — explains that although the game is not vastly complex, it needs some study. This is quite true. The main screen shows the deployment of various air and sea fleets, and you use your cursor to direct the movement of your US forces. Your task is to defend the island of Midway and sink Japanese aircraft carriers.

An air attack on the island is depicted with a marvellous aerial sequence in which tiny planes zoom through the air trying to avoid your tracer fire.

A short review like this cannot serve to give anything other than a brief idea of what promises to be an exhilarating game.

Program: Battle of Midway, 64

Full steam ahead



A TONY CROWTHER spectacle, Loco establishes itself immediately as a classic. The top section of the screen depicts an old-time locomotive chugging across a beautifully-drawn background, while the lower section gives a map of the rail layout. Using the joystick to select tracks, you must avoid explosive laden carriages and

attacks from aircraft and seaplanes. Sound effects and steam blasters add to, but you must make it to a refuelling depot before you grid to a halt and become a sitting target.

Wonderful music slipped off from Team Special Force, and attractive graphics (not outstanding, but well designed), make Loco a winner. One of the rare cases where the box illustration doesn't give an erroneous idea of the game, and there are screen shots too.

Program: Loco, 64

Supplier: Adagio, 178 West Street, Sheffield

Price: £7.99, disk £11.99

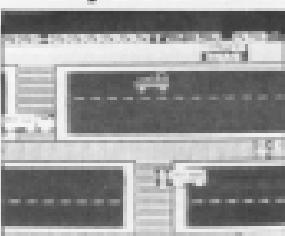
Graphics: 9

Sound: 9

Gameplay: 9

Supplier: PSS, 401 Stoney Stanton Road, Croydon
Price: £9.95 case, £12.95 disk
Graphics: 8
Sound: 6
Gameplay: 9

Psycho 8K



PRODUCING games for the BBC Micro is difficult. Producing good games for the BBC Micro is very difficult. Producing them at £11.95 must be near impossible. Mastertronic has done it with Psycho Shopper. Sorry if this sounds more like an advert than a review, but that's the way it goes sometimes...

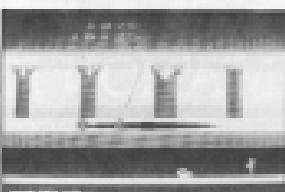
As you'll see from the screen shot, the graphics are clearly but repayable, and there are five screens — although it's so hard to get across the busy road in screen one that I haven't got any further. Roads include vicious Grammarians, deadly traffic and runaway accountants, and polymath Arthur must collect gold coins on the way to the supermarket.

A goodly, and a clear improvement on Mastertronic's first batch of games. Let's hope there are more to come.

Program: Psycho Shopper, Vic+48
Supplier: Mastertronic, 48 George Street, London

Price: £11.95
Graphics: 8
Sound: 5
Gameplay: 7

Take a fall



THE ORIGINAL and provider, and still the best, despite numerous imitations, Pitfall by Activision offers hours of play for the dedicated joystick basher. As Pitfall Harry you race through a seemingly never-ending jungle avoiding snakes, tar pits, alligators, fire, traps and spikes, searching for treasure and trying to beat the 30 minute limit.

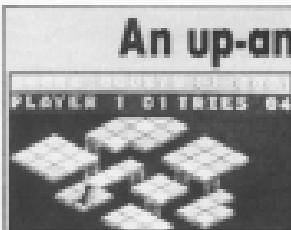
This one really is a classic, though its sets no new highs for graphics or sound. Strategy and timing is all, and there isn't a proton accelerating hyper-blaster in sight, thank goodness.

Program: Pitfall, 64
Supplier: Activision
Price: £9.99
Graphics: 6
Sound: 5
Gameplay: 9

Go West



YET ANOTHER new company, Talent, and another interesting range of products.



PRODUCING once again that the state-of-the-art programme comes from the good old U.S. of A., Stateside's Flip & Hop has a new high in perspective graphics programming. Stateside is a new company which is licensing US games and adding its distributor and new packaging. The results should be excellent.

Flip & Hop is set in the Zoo of the

future. You play two characters, Flip the Kangaroo and Munch the monkey. As in various Q*bert derivations, you have to jump from block to block until you've stepped on each section of the five main platforms. Then the game does an amazing flip-flop, and you find yourself as Munch the monkey hanging underneath the platforms. Later stages involve flying over and angry zor-berges.

Stateside made history of the Q*berts, nice sound effects, please and buy it.

Program: Flip & Hop, 64
Supplier: Stateside, Business & Technology Centre, Business Drive, Stevenage, Herts
Price: £13.95, disk forthcoming at £15.95
Graphics: 9
Sound: 9
Gameplay: 9

West is a text adventure with graphic interfaces, set in 1884. You are on the track of a gang of robbers. The usual adventure conventions are adhered to, and the vocabulary seems to be good, around 200-300 words.

There are a few oddities — in particular, if you don't type 'SHOOT' quickly enough, your life isn't worth a plugged nickel. There's also a section where you play posseman with the robbers, and an odd clause by which if killed you return to the start, and will eventually find yourself standing over your own corpse.

Lowly graphics, drawn with Talon's Paintbox/32 system, but only the one scene. Had there been more West would have been even better.

Program: West, 64
Supplier: Talent, Curzon Building, 101-103 James Road, Glasgow
Price: £19.95
Graphics: 9
Sound: 5
Gameplay: 6

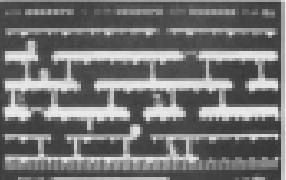
Pigeon pie



ANOTHER new company, Creative Graphics, has produced Petty Pigeon. Like Aladdin's Luca it's by Tony Crowther, and like Luca it's lousy. Petty the pigeon flies through a smooth-scrolling landscape of motorways, computer shops and snails, picking up traps to add to his nest. Cars, fences, lamposts, planes and recognizable squares serve as levels in the action, and Petty makes bush with revolving appendages. Not many levels and nine levels of difficulty. Look out Jeff Minter, the pigeons are coming...

Program: Petty the Petty Pigeon, 64
Supplier: Creative Graphics, Alpha House, 10 Curver Street, Sheffield
Price: £7.99
Graphics: 5
Sound: 5
Gameplay: 9

Ice scream



ED HAWK THOUGHT that boulders and

Continued on page 21

VIZASTAR 64

THE INFORMATION PROCESSOR

■ Spreadsheet

■ Database

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- Draw your own lines for easy selection of formulas.
- The high resolution and graphics from the very efficient processor make for a fast display.

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The information filing capabilities of Vizastar enable you to store your information onto disk in

an ordered and instantly retrievable form. This means that you can quickly pack out individual or entire groups of related information to create lists, statements, labels or reports.

Vizastar is the ONLY program of its kind on the Commodore 64. Completely consistent with the Vizawrite word processor, Vizastar provides a totally comprehensive office system.

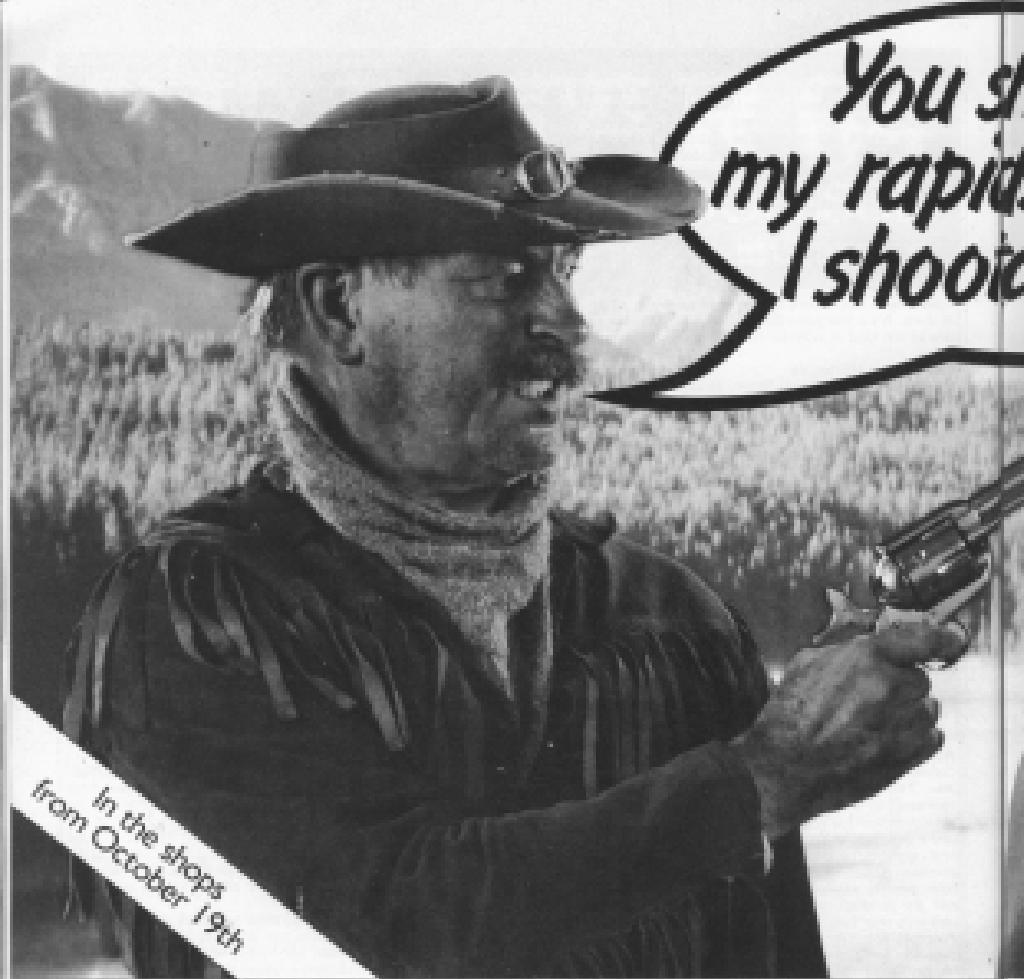
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In the shops
from October 19th

CLIFF HANGER

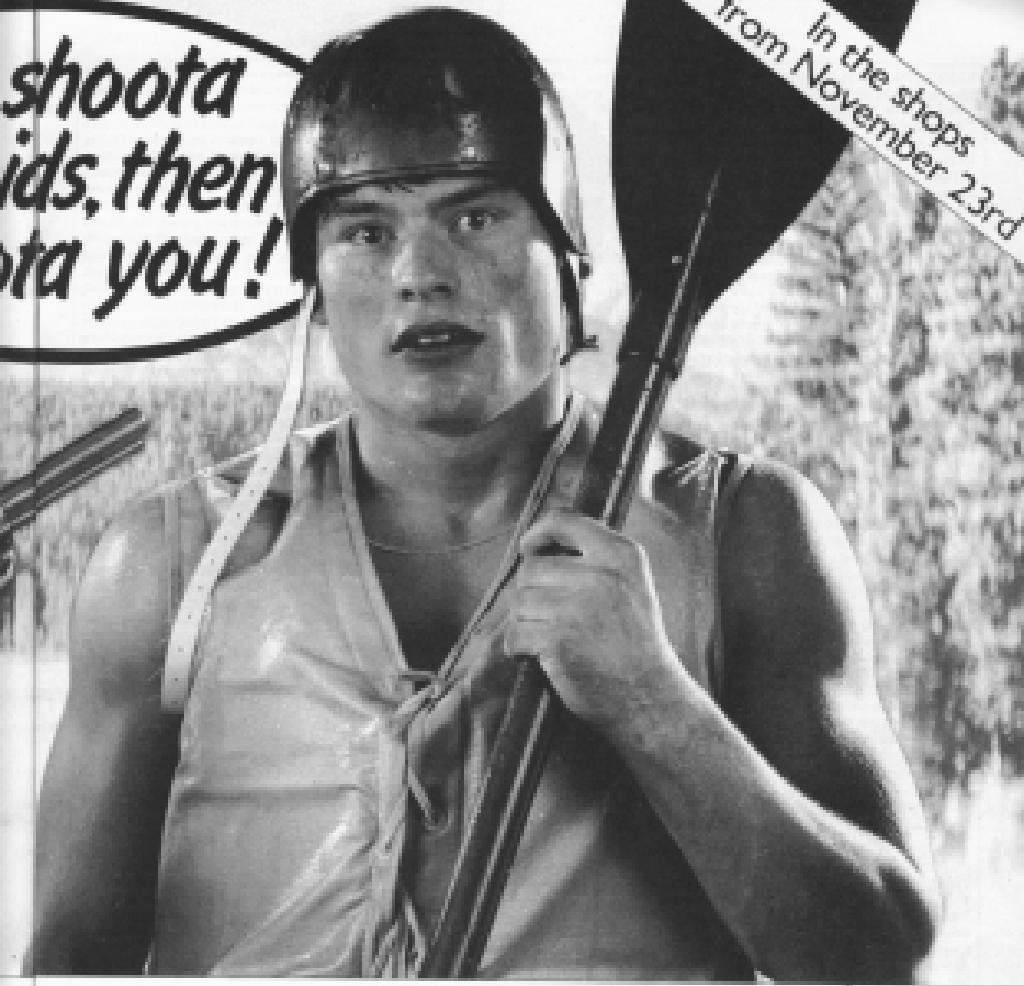
AUTHOR - JAMES DAY ORIGINAL MUSIC - BAZAN DOD

Thrill to the cartoon-style action of Cliff Hanger, a really original, Wild West game. As Cliff the hero, you've got to stop the bandits shooting up the canyon. But with its own brand of wacky cartoon action fun, things simply aren't as they seem in Cliff Hanger. For a start, the boulder you throw at the old bandit may just come bounding back at you.

Cliff Hanger incorporates all the elements that have made New Generation games best sellers for the Spectrum, such as original ideas, superb graphics and hilarious happenings - but more, it's available first for the Commodore 64. Featuring 32 separate screens, three levels of difficulty, one or two players scoring, Hall of fame and joystick compatibility or user defined keys, Cliff Hanger is set to be THE Commodore games playing sensation. Available from any good software store for just £7.95.

shoota
ids, then
ota you!

In the shops
from November 23rd



Shoot the Rapids

AUTHOR - PAUL BURN

Ever wondered what it would be like to face the fierce white water in a top class canoeist: slalom race? Well wonder no more because you can enjoy the fast action thrill of competitive canoeing from the comfort of your own armchair with Shoot the Rapids.

It's a game that involves real skill because you must move your joystick to simulate paddling action. You must get through the gates of the slalom course in the fastest time possible, while avoiding the river bank and rocks. There are also extra hazards like rogue speed boats and insatiable beavers to worry about.

This multi level game features increasingly difficult river courses with superb graphics and smooth scrolling along the river. Qualifying times have to be reached to move onto the next course.

With Hall of Fame, one or two player scoring and joystick compatibility, Shoot the Rapids is probably the best sports action simulation game devised to date. Available from any good software store for just £7.99.

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and PC



Software Generation products are sold according to
the terms of trade and confidentiality will

EVERYONE knows the pirates — they are easily recognizable by their wooden legs, discolored pants, and their language: "Aah! I've had" "Eh, you mean SO&T-WARF pirates? Well they speak a different language, don't they?"

There has recently been a lot of talk and some action about software piracy. The talk has been about crooks who copy commercially marketed software. The action has involved a few court cases by established software houses.

I'm not going to sit myself up as judge, for or against copying, but I will express my opinions in general.

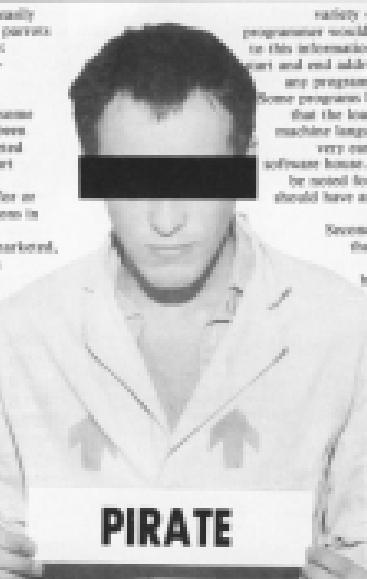
To copy software that has already been marketed, and re-market it in any form, would seem a clear case of theft. The law ought to deal with this area as it does with literary copyright. In fact there are some existing laws that try to cover this area.

To buy a piece of software and copy it for a friend or to put it from tape to disk is not so clearly a case of piracy.

The large game companies claim that they are losing millions every year from such copying. Of course if software companies start taking individuals to court, when they are only making a copy for "Freel" down the road, it presents them with at least a large PR problem. How do they justify protecting their customers?

The only other avenue open to them is to protect their software. What's that? But I hear several large software companies claiming, "But we do". In six years I have seen just two pieces of software which have been seriously protected, and at the last count I owned 300 discs, all original!

Of course people want to put their favourite games or utilities on disk, and good protection could allow that.



PIRATE

houses along with their copying services.

Whilst this might be a good idea and a good deal, you may well get a better deal in the long term by having each program individually protected to ensure that it will take anyone a good deal of time to break into or copy it.

A note here for readers and software houses — apart from the copies already

available of ways could copy it. Any good programmer would not allow you the luxury of access to this information. It is very easy to have the wrong start and end address placed into the tape buffer with any program in the header virtually unavoidable. Some programs have such weak protection on them that the loader may be put at the load from a machine language routine, which makes copying very easy and in control on the part of the software house. There are a few points that should be noted for use on any program. The first file should have an auto-run with conflicting start and end addresses.

Second, every program can be assembled, the stop key should be disabled where possible, and programs should be hidden with checks in the code for a program load.

Included here are a few limited programs to help you get the elements of protection and to encourage software houses to produce protection that will be unbreakable!

The first program is an auto-run — it is set up to save a Basic program with an auto-run on it. It is by no means foolproof and could be enhanced in many ways, but it does give the general idea. There is a disassembly of the code for you to study and a Basic loader should be entered and saved. On testing, it checks will be made for correct entries. If all is well the program will give you the format for saving a program. The filename is optional.

In general, the program stores the start and end address of the program to be saved. Next, a piece of code is transferred to \$0000 but instead the basic pointers changed to enable it to be used. The basic pointers for the program in RAM

Software Protection

If we just talk about the disk, there are now copiers that allow you to copy from tape to disk, disk to tape, tape to tape and disk to disk. There is also a utility which will allow you to run Turbo load your programs, not that turbo loaders offer any protection at all, they simply speed up loading time!

Of course the companies that are producing the copiers are getting a lot of disk from other software companies, and magazines are in cases being asked rather strongly not to carry ads for such products.

The most sensible course of action for anyone wishing no paying piracy copying your programs, is to prevent it by protecting the programs properly.

This is not simple, but is possible. The best place to start is by always knowing what the competition is offering to the public in terms of copiers. This will enable a good programmer to ensure that the latest range of copiers will be useless against your programs. Data copying companies are currently offering protection to software

mentioned, there is the faithful audio copy. On most systems this is fairly easy, but the 64 is fairly fussy about the levels used, and whilst audio copying remains a possibility it is difficult.

There is a way of protecting against audio copying, but the general opinion is that the expense involved in doing this is too great.

The first thing anyone wishing to copy a program from tape will do is to try to load the first part and glean as much information as possible. For different reasons this is usually difficult. If a program will not load and be examined then the following command will give you the header information:

OPEN(0,0,0,0)

In direct mode this will find the first header and stop the tape. At this point the name of the program and the start and end addresses are to be found in the tape buffer.

There may also be a program loaded in the header. At this point you do have a lot of information about the program and in a

are then revised, and another save is executed. When the program is loaded in will auto-run, disabling the stop key, loading and running the new program again.

As mentioned before, this is not an unbreakable auto-run, but it works! An addition to this might be to scramble the program to be saved and to scramble it before execution; the extra code needed would look like this:

```
LDA #100
STA $000
LDA #100
STA $001
LDX LDY #100
L1 LDAA ($000,X)
STA ($001,Y)
BPL L1
RTA ($001,Y)
INY
BNE L1
INC BPC
LDA BPC
CMP #100
BNE L0
RTS
```


mixed baggery — a red lining. Hang fire with this one, try one code that you fancy!

Finally, a machine code routine that points to a BASIC program elsewhere in memory, so that when it is loaded and fired, only an RSV number is visible.

There is a disassembly listing and a memory dump included — the disassembly listing looks a little odd, but all will be revealed. This easiest way to enter this is by using the memory dump. To do this enter the following from your monitor:

80000 0000

This will display the necessary locations. Now enter the \$FF clamp from the previous page.

Having done this, save it off and then exit the monitor and list the program. It all will you should be presented with the following:

80000000

A little explanation is needed here. Locations 80000 and 80001 hex are set to the end of the program which is 80008 hex. Locations 80003 and 80004 are the first Basic line numbers (zero in this case). The 8001 hex in location 80001 is the SYS instruction and locations 80006 to 80007

inclusive contain the ASCII codes for the call (2041).

When a RSV is performed it goes to location 20001 decimal, 40960 hex. If you look at this address on the disassembly we can see what happens.

The first instruction at 80001 hex branches to 80202 hex where it should find the executable program.

Do not forget to enter and save this program, we will come back to it later. The next two instructions clear the screen, a RSV is placed in to the keyboard buffer for later use and the user of Basic is moved to start at 80004 hex. The subroutine from 80002 to 80010 moves the screen to 20176 decimal and the screen is cleared again. Finally our new Basic area has the first location set to zero and the routine finishes.

At this point the RSV in the keyboard will be executed on the Basic program which should be at that location. The way to save or load a Basic program into the area this routine is set for is with the following from direct mode:

POKEL 43 105 :POKE D44,1 :POKE 21540:POKE return >

Whenever this routine is tapped onto the beginning of a Basic program the whole thing should be saved from the monitor, with:

80000000,000001,000000

Where zero represents the end of the Basic program, remember the 3 zeros. It can then be reloaded as a normal Basic program and executed.

The routine from 80202 to 80208 hex is a two pass assembler. Any Basic program that is going to be saved with the above routine should first be loaded into 2014 decimal and put through the assembler. To do this load the routine at 80201, load the Basic program and enter:

80000000,000001,000000

From save off the program. As it is now assembled it is unreadable, and will not

PC	SR	AC	SC	TR	IP
100000	30	00	00	00	00
80200	40	00	00	00	00
80201	00	PC	00	00	00
80202	40	00	00	00	00
80203	00	PC	00	00	00
80204	40	00	00	00	00
80205	00	PC	00	00	00
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C601	BB	2E	STA	02E	C694	AF	81	LDA	0481		
C603	AF	ED	LDA	04ED	C695	AA		TAB			
C605	BB	32	83	STA	063232	C697	AB		TAY		
C606	AF	F5	LDA	04F5	C698	28	84	FF	JBR	04FF84	
C608	BB	33	83	STA	063333	C699	AF	88	LDA	048888	
C609	AF	83	LDA	0483	C69A	A2	88	LDI	048888		
C60F	BB	82	83	STA	063882	C69F	AB	88	LDT	048888	
C642	AF	A4	LDA	04A4	C6A1	28	8D	FF	JBR	04FF8D	
C644	BB	83	83	STA	063883	C6A4	AF	F8	LDA	04F8F8	
C647	AF	88	LDA	048888	C6A4	BB	28	83	STA	063232	
C649	BB	90	STA	0490	C6A9	AF	F8	LDA	04F8F8		
C64A	AF	81	LDA	0481	C6A9	BB	29	83	STA	063232	
C64D	A2	81	LDX	0481	C6A6	AF	82	LDA	048882		
C64F	AB	81	LDT	0481	C6B0	BB	28	08	STA	063232	
C671	28	84	FF	JBR	04FF84	C6B3	AF	88	LDA	048888	
C674	AF	88	LDA	048888	C6B5	28	05	FF	JBR	04FF05	
C676	28	8D	FF	JBR	04FF8D	C6B6	BB	28	STX	0420	
C677	AF	20	LDX	0420	C6B4	BB	2F	STX	042F		
C678	AF	26	LDT	0426	C6B6	BB	31	STX	0431		
C679	AF	28	LDA	0428	C6B6	BB	38	STY	0438		
C67F	28	88	FF	JBR	04FF08	C6C0	BB	38	STY	0438	
C682	48		RTS		C6C2	BB	32	STY	0432		
C683	AF	83	LDA	0483	C6C4	AF	F8	LDA	04F8F8		
C685	BB	82	83	STA	063882	C6C6	BB	27	83	STA	063232
C686	AF	A4	LDA	04A4	C6C7	AF	ED	LDA	04ED		
C688	BB	83	83	STA	063883	C6C8	BB	28	83	STA	063232
C689	AF	88	LDA	048888	C6C6	AF	88	LDA	048888		
C69F	BB	90	STA	0490	C6D0	28	88	AF	JBR	048888	
C6F1	28	05	FF	JBR	04FF05	C6D3	28	88	AF	JBR	048888
					C6D4	4C	AF	87	JBR	047A8E	

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Drawing on the 64's artistic abilities

C P Whiwhiwhi looks at three graphics packages — two for budding painters, one for handling sprites

SO YOU DON'T, dear reader (in common with most other 64 owners) do you have a love-hate relationship with your electronic marvel. We all know that the 64 has excellent sound and graphics capabilities, but we are also painfully aware that it is not easy to get the best out of this machine. Four not? Help is at hand with an ever increasing number of software packages designed to do away with some of the more complicated procedures required by CBM Basic. Three such offerings are Paint Pic, from Rama, Paintman from Taitan, and Microsoft's Go Sprite.

Paint Pic is a cassette based colour drawing program, which offers you a blank screen upon which you can paint your artistic talents out wild using a cross-hair cursor as a pen. There are 4 different coloured pens available at any one time, enabling you to draw in 3 colours (pen 0 is the background colour) at the touch of a button. Pen, border and eraser colours can all be changed by single key operations. In 'pen' mode you are drawing points or lines of one dot width. In 'brush' mode this can be expanded to give thicker lines up to eight dots wide. Other commands available in this mode allow you to have 3 colours on the brush at the same time, which can be rotated along the brush length to give repeated colour patterns.

Help!

There are various 'standard' shapes which the program will draw for you, including Straight Lines, Triangles, Circles, Ellipses and Arcs. All the closed shapes can be pen-filled by switching on the appropriate colour before pressing the required command key. In addition to 'pen' and 'brush', there is a text mode which permits the use of the 64 character set anywhere on the screen. If you have drawn something that you particularly like, you can duplicate it, either as it is, larger or smaller, the same way round as inverted.

Although it is possible to draw quite pretty pictures with Paint Pic it is rather slow and generally not very impressive. The HELP screens are poorly designed and, as such, are not HELP at all. The same applies to the manual. At £18.50, I find Paint Pic mediocre. Contact Rama at Unit 13, Horncastle Park, Horncastle Road, Peterborough, PE3 7LZ. £18.50.

Paintman, on the other hand, is really

rather good. While the user was heading I skipped through the manual and was pleased to see that it was well written and quite easy to follow.

The first screen presented is a menu of all the (1 or 2 key) commands along with their functions (eg. PC/FB Colour). Hitting the SPACE bar will take you to the Picture Screen. Hit it again and it's back to the MENU.

At the bottom of the Picture Screen is a 'soft line' which gives the program status, eg. current cursor position (X,Y forward), colour and texture selected and one or two other bits of useful information. If you want to use the bottom eight lines of the screen you can turn the 'SOFT' off.

To move the cursor about you use the cursor keys or (these still) a joystick in Port 2. It travels at quite a steady pace at first, but things get fast and furious if you hold the stick over! Pressing the FIRE button will place a dot in the current position. You can move a point by selecting the background colour and overtyping the error. To draw a trail of points, just hold down FIRE and keep going!

If you make a complete hash of things

you can 'Wipe' the whole screen before anyone notices. For those with something less than 20/30 vision, the area around the cursor can be magnified. And the job for those important little places? As with most programs of this type, you don't have to worry about trying to draw 'perfect' circles, etc. All the 'regular' shapes are taken care of for you. Drawing an ellipse, for instance, only requires you to mark the 2 Port 0's and a point on the circumference. The rest is done for you.

On discovering some of your lines in the wrong place, worry ye not. Type Z and 'Hit' any part of the offending shape with the cursor... it simply disappears. Painting is complicated with Paintman. First making pretty coloured patterns is easy, using the DT (Define Texture) command. A Texture (in this instance) is a block of 64 (6x8) pixels filled with dots in the pattern of your choosing. You can Define 22 of these blocks, labelled 1 to 22. (A slight bug here displays them in the wrong order, but never mind).

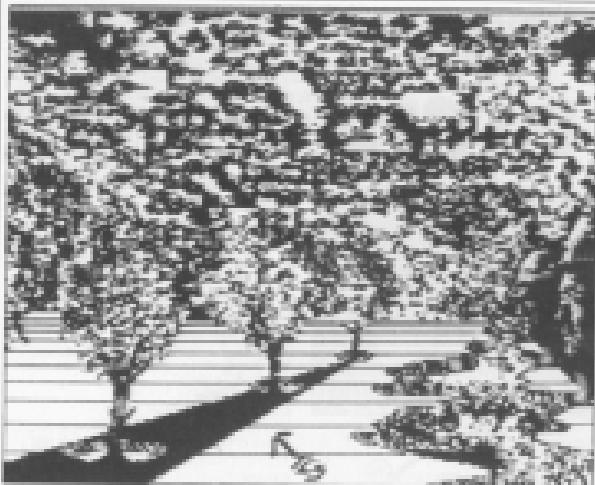
Plsols

Select your Texture block whenever you wish and place anywhere on the screen. Shapes can also be filled with these blocks in place of 'straight' colour. A set of BLOCK commands permit the transposition of any particular block to a different point of the screen, either as an identical copy or as a mirror image (horizontal or vertical). To move a block a small distance the Drag command is the one to use. To create a block or block base (that is, which clears the marked section but leaves the rest of the screen intact). A Text command allows the use of any letters or numbers from the keyboard. You cannot use the Graphic symbols, although this does not present any problems as you can make your own Graphic characters using the Define Texture routine.

When you author your picture



Paint Pic — pretty pictures if you have the patience



Parsons — excellent scenes, good images

■ You must remember that a block of 8x8 pixels can only have 2 colours, 1 foreground and 1 background. Each can, however, have any combination of all the available colours so there is plenty of scope for the more artistic amongst you. It is, perhaps, advisable to share your original sketch on top of the checkered screen colour scheme 08. This will show you where the sides of each colour block are so that you can get as many of your lines as possible to coincide with these edges. With a combination of good colour schemes, Dither Textures, a little hardwork and your own unabashed ability, excellent results can be obtained which you can save on Tape or Disk for later retrieval.

As you have, no doubt, gathered I liked this program a lot. It was fast! It's very easy to follow and even I managed to get the hang of it quite quickly. As I mentioned before, the manual is unusually good. Full Marks . . . almost. I didn't like the constantly flashing cursor, but then I've yet to find something to move about, hasn't it? Price is £17.95 on tape or £19.95 on disk. Contact Taliesin at Curlew Building, 104 St James Road, Glasgow, G80 9JZ.

Sprites

If you've ever tried programming the dreaded sprites into your 64, then you will know what a jolly task it is! Anything that promises to reduce some of the drudgery involved has got to be worth a look.

Co-Sprite is a massive program that enables the user to draw up to 32 sprites on the screen and try them out in any sequence. The first screen shown is the one on which you draw the objects of your fantasy. This is made up of an enlarged grid (the drawing area), a sprite display box (which shows what it really looks like . . . right side and all), and a set of command KEYBOARD. All that is required to enter an instruction is for you to place the cursor

over the appropriate icon and hit the View button. Along the bottom of the screen is a Paint Box; the colour being selected is the same way as commands.

Each square on the large grid represents one dot of the sprite which will appear in blue when 'lit', or in white (background colour) when it hasn't. When drawing in the 16x16 mode you are limited to 2 colours . . . 1 foreground, 1 background. In Multicolour mode there is the added attraction of 3 foreground and 1 background, but at a price. The definition is not as good because each vertical column is now 1 dot wide. On completion of the design, the sprite can be viewed back to front, upside down, stretched (horizontally

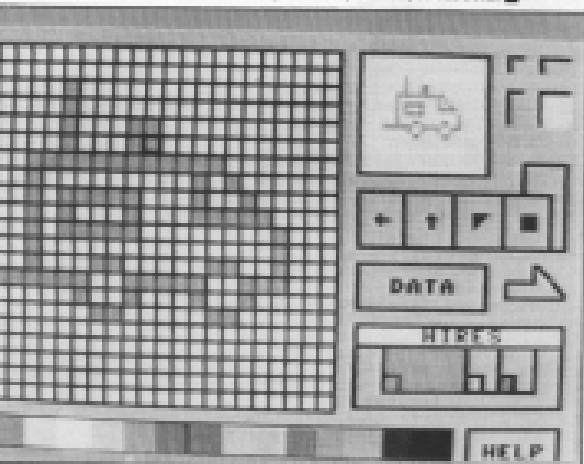
or vertically), or in Negative form. This reverses the foreground and background colours. You can, of course, clear the screen should you make a fool of yourself.

Once happy with your creation, press in the next screen for sprite selection and copying. At the top is a "Carousel" of 7 windows. Below is a Selector which allows you to scroll any of your 32 sprites into view, 7 at a time. Each of the sprites is assigned a position in the Priority Stack. This decides which will be in front of which if superimposed. The resulting overlay can be seen in the sprite Display Box. Whilst at this stage you can copy or move any design.

Animation

Finally we arrive at the Animation Screen. This is when things really start to happen. There is a whilst strip running down one side . . . the "Star" running across it is a version of the "Carousel" from the previous screen. Sprites are transferred into the Carousel as and when required in order to make up an animated sequence of up to 256 frames.

When the film is run the final result of your labour will be revealed in all its mobile splendour. Once you are satisfied that the sequence is correct you can prepare your sprites for use within your own programs. To do this you need to convert them into basic data statements, using the CONVERT program so kindly supplied on the B side of the DOCUMENTATION tape. (Although it is on cassette don't be put off; it loads Powerload, no tapes under 3 minutes to become operational). All the screens have HELP boxes which refer you to a section in the manual. I especially like the use of icons; it makes it all so much easier — and faster! Everything works. Not a bug in sight. This is the sort of standard software package which should aim for Excellence. Co-Sprite costs £39.95 from Microsoft, The Miller Group, Hollins Circus, London, SE1 4JZ. ■



Co-Sprite — not a bug in sight!

Solar Software evolved 18 months ago, with John Story, who was then 10 years old, persuading his mother, Brenda, to buy him a VME.

John had long been interested in electronics, and had dabbled about with a microchip 16, on Brenda's lawyer had the capability of producing a program. Amazingly, within 10 weeks of buying the computer Solaris' first three games were on the market: *Calculus*, *Scrambler* and *Space Bookend*.

By Christmas 1992 John had written three more programs, *Mount Man*, *Autumnal* and *Gas Flight*.

By January '81 all six games were selling well, and Solar was receiving trade inquiries from computer dealers both in this country and abroad. The games were starting to appear on dealers' shelves — but only in the Manchester area. It wasn't until Solar took part in a computer exhibition at the Midland Hotel in Manchester, when they were approached by a distributor company, that the games were available from computer shops all over the country.

During this time John had produced another two games, *Cave Raiders* and *Comic Fire Blasts*, this bringing the total to eight games, all written in machine code.

By June 1940 the first 40 program was in the pipeline — *Galathia*. This was followed by March Man 44, which brought a long respite.

Solar now has her own stamping equipment, run by Brenda's husband, with the

STANDARD

BMX RACER



By John Gray from



Solar new has a total of 14 games for the Commodore machines, and they are now available at the end of September.

With new premises at 77 West Drive, Bury, Lancashire, Sister Barbara looks set for further success, and at 18 years John Shry is a director of a very successful concern.

Julian's next 16 games for Solaris is a multi-level chess epic based on a Chinese legend. He says it will be the best yet, but while you're waiting you can learn in WWW.Solaris.com.

The object of BMX Biker is to ride along the course, jumping cones and carrying over the flags at the end. The speed at which you are travelling affects the distance you jump, so it has to be judged carefully. You are allowed three attempts before the game ends.

Hit an obstacle or fall to make the jump and you'll take a nasty fall! Use R to slow down. X is used for the jump.

Environ. monit.

Full Ref ID variations

1178 Set up and print scrolling ground
1250 Test for jump and carry it out
1300 Check if file is at home

More Details

1990 New regulations

ANSWER

10.2011 Annual review

1990-1991 Interactions

III. THE DIALECT

2004-2005 Data for Special Education and
Vocational

```

299 POK(0)=POK(0)+"
300 POK(1)=POK(1)+"
301 POK(2)=POK(2)+"
302 POK(3)=POK(3)+"
304 REM--POKE=1H=SCINBRY=DATA-
305 IF PEEK(12)=0 THEN 371
307 POK(2,3)
310 POK(0)= TO 3
318 FOR I=1 TO LEN(MOD000)
322 CMSC(16H)(MOD000),I,120
323 I=1
325 IF CX2006 AND CX212 THEN D=6
326 IF C=195 THEN D=2
327 IF C=199 THEN D=4
328 IF C=200 THEN D=3
329 IF C=201 THEN D=5
330 IF C=204 THEN C=128
331 POK(14H,00H)+(255,00H)+(0H-1)+1024,I
335 POK(14H,00H)+(255,00H)+(0H-1),C
336 HEXTB,A:PRINT"0"; POK(0):RETURN TO START"
338 DEXTB:1POKE00H,B(10) THEN 169
339 GOTO1
341 H=1024
342 POK(0)= TO 48:POKE16732+R,32:POKE16960+R,32:HEXTB
343 POK(0)= TO VR2 STEP 2
344 POK(16732+R,71):POKE16733+R,72:POKE16960+R,72
345 POK(16732+R,44H,6):POKE16733+R,44H,7:POKE16960+R,44H,7:NEXT R
346 IFV=8 THEN POK(16960,32):POKE16910,32:POKE16960,32
347 FOR I=V+VR2+16 TO (VR2)+256 STEP 2
348 POK(16732+R,72):POKE16960+R,72
349 POK(16732+R,44H,2):POKE16960+R,44H,2:NEXTB
350 POK(53249,3):POKE53248,169:POKE53249,172:POKE2940,298
351 SYS19432
352 IF PEEK(251)C16 THEN R=POKE(53279)
353 IF(PEEK(53279)AND1)=1 PROPEEK(251),C119 THEN POK(2940,212):GOT0479
354 Z=2+1: IF Z>8 THEN 230
355 Z=4-[INT(Z/7)]:GOSUB 268
356 IF E=0 THEN POK(2940,F:E=1):GOT0230
357 IF E=1 THEN POK(2940,F+1,E=0)
358 GEOF: IF H=1 THEN 369
359 POK(53250,299)+K
360 IF PEEK(197)=1278D K=1: THEN K=K-1
361 IF PEEK(197)=2349D K=2: THEN K=K+1
362 IF PEEK(251)D159 THEN 230
363 IF PEEK(251)D129 THEN 230
364 IF PEEK(251)D160 THEN 230
365 IF R=0 THEN H=0:R=1:J=0
366 IF G=0 THEN G=0+1
367 IF G=4 THEN F=298:POKE2940,F
368 IF H=1 THEN 297
369 IF D=0 THEN POK(53249,PEEK(53249))-3
370 IF I=1, THEN POK(53249,PEEK(53249)+3
371 J=J+1: IF J=4 THEN I=I+1:J=0
372 IF I=8 THEN H=0
373 IF PEEK(251)D115 THEN 219
374 GOT0 219
375 IF PEEK(251)D115 AND PEEK(251),C119, THEN L=0:R=0:F=218:POKE2940,218
376 IF L>0/27 THEN R=1:L=0:R=POKE(53279)
377 IF H=1 THEN 349
378 POK(53249,PEEK(53249)-3):L=L+1
379 GOT0 219
380 IF PEEK(53249)=172 THEN F=299:POKE2940,F:L=0:H=1: 0010369
381 IF(PEEK(53279)AND 1)=1, THEN 479
382 POK(53249,PEEK(53249)+3):L=L+1
383 GOT0218
384 REM
385 REM
386 REM
387 REM

```

Continued on page 37

DO YOU HOVER AROUND WAITING FOR BASIC?

D.T.L. BASIC 84

Jetpack is a Basic Compiler for the Commodore 64. It converts a Basic Program into Processor Machine Code which runs much faster and is smaller, leaving more RAM for you.

• 100% compatible with C.B.M. Basic. McCompiled programs may run up to 25 times faster than fast automatic garbage collection routines is included. It uses existing machine code routines without alteration. It can compute extensions to Basic. McCompiles program making it easier to type. McCompiles both floating point and integer statements. McCompiles all syntax error checking while compiling. McCompiles references and checks all GOSUBs and GOTOs. McCompiles a cross indexing error locate program for use if your program causes errors running.

D.T.L. Basic 'Jetpack' is available on tape or disc.

Tape Version ... £14.95 Inc. Vat. Disc Version ... £16.95 Inc. Vat.
Note: The tape version is restricted to compiling machine code programs.



USE D.T.L. BASIC 84



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```

389 IF (PEEK(53272)+RND1)=1 THEN 400
390 D=1:GOT0450
391 P=212:POKE2048,F
392 REM
393 FORL=1 TO 50:NEXTL
394 SYS18794:GOT0500
395 REM---
396 POKE2048,212
397 IF PEEK(53249)+171 THEN 490
398 POKE33249,PEEK(53249)+2:FORL=1 TO 18:NEXTL:GOT0479
399 GOT0 450
400 IF D=0 THEN 550
401 PRINT"*****" * * * * * SC=SC+1
402 IF V=0 THEN PRINT"*****" SC PRINT"**" :GOT0500
403 FORR=1 TO 1500:NEXTR
404 POKE3229,SC:POKE3229,L1:POKE830,V
405 CLR
406 SC=PEEK(8290):L1=PEEK(829):V=PEEK(830):
407 VV=V-1:PRINT"**":POKE2048,200:F=200:R=PEEK(53279):GOT01
408 PRINT"*****" :L1
409 PRINT"** DONE OVER. PRESS RETURN TO REPLY."
410 GETRI:IF R=CHR(13) THEN 390
411 F=200:POKE2048,F:R=PEEK(53279):POKE3269,0:POKE3249,172
412 POKE3249,0:POKE3249,0:RUN
413 FORR=1 TO 300:NEXTR
414 POKE830,SC:POKE3229,L1:POKE830,V
415 CLR
416 SC=PEEK(829):L1=PEEK(829):V=PEEK(830):RETURN
417 REM
418 POKE34276,0
419 POKE34279,12
420 POKE34277,12
421 POKE34276,129
422 POKE34273,50
423 POKE34276,129
424 RETURN
425 REM
426 POKE34276,32
427 POKE34276,33
428 POKE34276,32
370 RETURN
390 REM
1000 IF (PEEK(20)=3 THEN 1
1000 PRINT"*****" :REM RINGER":POKE3269,0:POKE3281,0
1000 PRINT"**" * * * * * BY J.P.SHAW"
1000 PRINT"*****" PLEASE WAIT A MINUTE."
1000 DOSUB 1500:GOT01
1500 REM--POKE2--1H-DTR
1510 RKB=13448350+1824
1520 R1=0:R2=5448960+512
1530 R12=(R1*2048)+R2:R=0
1540 RESTORE
1550 IF 3=0 THEN 1600
1560 REM:R=1:IF R=1 THEN S=S+1:C=0:GOT01555
1570 POKE RKB,C,R
1580 C=C+1
1590 GOT0 1555
1600 POKE5334,PEEK(56334)+RND254
1610 POKE1,PEEK(1)+RND251
1620 FORR=0 TO 511:POKE(2,584996)+R,PEEK(R+3248):NEXTR
1630 POKE1,PEEK(1)+R

```

Continued on page 19



The WYSIWYG principle

Three business programs investigated by Trevor Doherty — a word processor and two spreadsheets. And WYSIWYG explained

A WORD PROCESSOR is often one of the first "serious" pieces of software in which personal computer owners invest. The Commodore 64 is one of the best home computers for word processing, due to the excellent keyboard and readily available printers and disk drives. A large number of 1541 disk drive owners were fortunate enough to get a free copy of Commodore's own Kickstart word processor with their drive — which no doubt is seen as a lot of Commodore pride.

Because so many people already have Kickstart a software house selling a rival word processor must have an uphill struggle, with a large chunk of the market unlikely to buy this product, however good.

Perfection

Any word processor must have certain fundamental features. The more basic features can be typed in from the keyboard, viewed on the screen, edited and amended as required, printed out and then stored for later retrieval. The ability to perform these plus additional features that most of the better processors allow, means that even a two-fingered typist can produce a perfect printed output.

Wordraft 64 (1541/515) disk is the latest version of a word processor with a long pedigree on Commodore machines. The program comes with a "single" processor device which plugs in to joystick port one. There is a 40 page manual and a little card which lists most of the 64's function keys and

shows their use — an idea which shows the careful thought which has gone into the product.

On loading the program you are confronted with a fairly multi-coloured screen phenomena. I quickly learned to change the colours to something more sensible. Wordraft works on the WYSIWYG principle — What You See Is What You Get.

Wordprocessors fall into two categories, those which format on input to the printer and those which format on your type. Wordraft falls into the latter category. You type on the screen the way you expect it to appear in the printed output. You might think that I'm not convinced that this method is actually successful on the 40 column screen available on the 64 — the screen width sideways to allow a typical 80 column document to be input and you have to scroll from side to side to read the finished document on the screen. One advantage of this method is the text isn't limited with embedded format commands.

Wordraft has a "ruler", a coloured bar across the screen on which you set margins and tabs. This feature is very easy to use. Other features include search and replace — for example, you ask the processor to find every occurrence of the word "book" and replace it with "new". The ability to take text from one document and combine it with another is provided with the "merge" facility, and a "fill file" allows names and addresses to be inserted into standard letters. Disk access from

within the program is very easy, and text files can be loaded by calling up the directory and using the cursor to highlight the correct file to be loaded — no need to remember the exact name.

The ability to output text to a wide range of printers is one of Wordraft's strongest features. Each printer supported has a printer definition file on the disk, covering a good range of the most popular printers. My MTPS 801 worked fine. The clever thing is that if you have an unusual printer you can define your own printer definition file and save it on the disk, nearly half the manual is devoted to this useful feature.

Conclusion? A product of the highest standard, particularly strong on printer support, good value for money. But I'm afraid I couldn't get on with the sideways scrolling on the screen of a document wider than 40 columns.

Formatting

A SPREADSHEET is another piece of software likely to be high on the list of home-games software purchases. A spreadsheet allows the computer screen to be used as a large sheet of paper divided into rows and columns, by formatting the screen into a series of "cells" addressed A1, B1 etc. Rather like playing Battleship?

Initially any task that can be done with a calculator and pencil can be carried out and subsequently used for future use or printed. Once a sheet of calculations has been set up, it is then easy to amend individual figures and see the effect on the other dependent figures. Thus if you had a sheet showing your household budget you could see the effect of, say, a higher mortgage repayment on your expenses. This feature is called "what if" calculations.

One feature which uses spreadsheets often is "replicate", the ability to copy a cell or range of cells so that similar calculations can be carried out elsewhere on the sheet. This allows, for example, similar totalling to be carried out in each of twelve monthly columns by just defining the calculation in the first month and then replicating it. I use a spreadsheet to help to carry out many tasks, such as keeping track of my bank account.

Autocalc 64 (1541/515) disk, (£14.95) is a recent entrant to the market. It is advertised as "100% machine code" which should give it a speed advantage over its rivals which are part or all written in BASIC. In practice I found the speed advantage was slight and impaired by other disadvantages.

Command

After loading Autocalc you define the size of the blank sheet, and the screen displays the familiar spreadsheet format of rows and columns plus a command line, the first time I tried to use it I tried to type in some headings but found I couldn't get anything to appear on the screen, a closer examination of the 5 page manual provided (which gives details of each of the 19 function commands) showed me that to enter text you have to press "T" "V" and then press the Return key before you can type a heading or label into a single cell. The same

WORDRAFT

Word processing program

WORDRAFT 64
1541/515
Disk

£29.95
1541/515
Disk

WORDRAFT 64
1541/515
Disk

WORDRAFT 64
1541/515
Disk

thing applies with 'M' for data and 'T' for formula. This allows to use a 'bottom' arrangement, and I found the extra three key-strokes per cell saved down on. Other spreadsheets are able to distinguish between labels data and formula input by the initial key-strokes.

Utilisation

Another nice feature is that, during the screen during each calculation, a limitation about spreadsheet is avoid. Calculation can be requested by using the command 'C' or automatic calculation can be selected, but this strangely takes place when you perform a arithmetic operation, not immediately following entry of the number in question.

Two features I did like very much were the ability to change the width of individual columns, and the 'Home' key which takes you back to cell A1 from anywhere on the sheet. No facilities are offered to insert into a column / rows, delete them or move about. It is possible, however, to delete the contents of an individual cell. A limited 'replicate' function is available allowing single cells, rows, columns or blocks of cells to be copied, but not expanded. Thus you cannot easily carry out similar calculations in each of several columns without entering them all individually.

Each time you type something in and press "return" the cursor jumps in a direction dictated by its previous movement: forward and annoying. Much more serious was that I managed to "crash" the program twice. The first was caused by the "command line" at the bottom of the screen not being protected. I inadvertently used the cursor key and typed in the wrong place on the screen. When I pressed "return" the program crashed. The second occasion was when I incorrectly tried to save a file to tape instead of disk.

To sum up I'm afraid I cannot recommend this product, despite the competitive price. There are better spreadsheets for the money, for instance SuperSoft's *VisiCalc*.

PS (89.95, disk) is a spreadsheet with a difference. What sets it apart from others

Screenshot: PS — competitive price

available for the 64 is a facility which lets you add functions by programming your own, in Basic, saving them on disk and recalling them from within the spreadsheet. This powerful facility means that the spreadsheet can be customised to carry out specialised calculations beyond the ability of a normal spreadsheet.

PS is based on *Practical* and offers the same facilities, with the addition of the programmed functions. PS comes with a 124-page manual divided equally between the standard *Practical* features and the additional PS features.

Practical

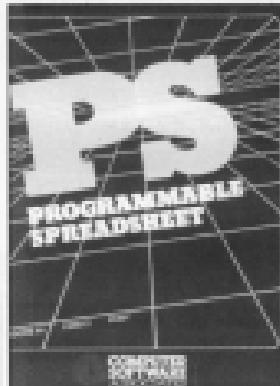
After loading PS you select your sheet size, up to a maximum of 2000 cells. You may choose the column width, and one column may be a different width from the rest, to allow long titles. Labels, data and formula may be typed straight in and PS can usually decide which are which. One drawback is that the screen display is just in upper case. Calculation is performed on request only by pressing 'T'. Replication is only using the 'D' key, but only allows a

single source cell to be used at a time, although this may be expanded into a range of target cells. Insert, delete and move facilities are all provided.

PS has some unusual facilities which are not often seen in spreadsheets. You can change the representation of numbers to graphical format, and use PS to plot graphs which look very good printed on the screen. PS allows you to sort both alphabetically and numerically and to search for a number, word or formula. Titles can be fixed so that they do not scroll off when moving round the screen. All the above features are shared with *Practical*.

The unique PS programmable facility is covered in the second part of the manual; twelve additional facilities are described and included on the disk to get you started. Examples include a facility to carry out a sum in primary and secondary order and a feature to move all the data from your sheet whilst leaving the titles intact. Program listings are given in the manual so you can see how it's done. The possibilities are limitless. To use the programmable facility you first recall your program from disk and then execute it as often as you like at the relevant places on your spreadsheet. Only one add on module may be used at a time, but several could be called, one after another from within the same spreadsheet.

I think PS is an excellent product, but the market for it is limited to those who need more than a good ordinary spreadsheet can provide. If you don't need the add ons, *Practical*, which is about 125 cheaper would soon a good bet. ■



Programmable Spreadsheets — unique facilities

Contact address:

Wendover 44, Daventry, Northants, NN11 2JL
Richard Shepherd Software, 23-25 Ellington Lane, Croydon, Surrey, CR9 3AA
Practical, 404 Public Image PR, 42 Tottenham Court Road, London, W1 9BB
0171 580 7700

COMMODORE SOFTWARE FILE

Split screen

By Michael J. Murphy and the old program

THIS IS A BASIC loader program which

```

10 A=50339 T=0 C=0
20 READ#1 IF#1=1 THEN 40
25 POKER, D: T=T+8: R#R+1 : C=C+1
30 GOT020
40 IF T<16789 THEN PRINT CHR$(147): PRINT " DATA VALUE ERROR": END
42 IF R#58460 THEN PRINT CHR$(147): PRINT " NUMBER OF DATA ITEMS ERROR": END
50 PRINT CHR$(147): PRINT " USE SYS(50339) TO CALL HIRES WINDOW"
52 PRINT CHR$(17): PRINT " SYS(50446) TURNS OFF WINDOW"
54 PRINT CHR$(17): CHR$(17): CHR$(18): " TO CHANGE AREA OF HIRES WINDOW"
56 PRINT CHR$(17): " USE POKER=50439, Y FOR START OF WINDOW"
58 PRINT CHR$(17): " POKER=50410, Y1 FOR END OF WINDOW"
60 PRINT CHR$(17): " HIRES WINDOW RT 8192 TO 16191 IN MEM"
62 PRINT CHR$(17): " USE NORMAL CLEAR HIRES AREA ROUTINE"
67 PRINT CHR$(17): " IE. POKER=8192 TO 16191: POKER, 8, NEXT"
70 PRINT CHR$(17): " ADJUST COLOUR MEM FROM 1624 TO 2023 TO"
72 PRINT CHR$(17): " SUIT AREA RESERVED FOR HIRES WINDOW"
80 END
100 DATA120, 169, 197, 141, 20, 3, 169, 196, 141
101 DATA21, 3, 173, 17, 208, 41, 127, 141, 17
102 DATA208, 169, 151, 141, 18, 208, 173, 25
103 DATA206, 9, 1, 141, 26, 206, 88, 96, 169, 1
104 DATA44, 25, 208, 208, 3, 76, 49, 234, 173
105 DATA17, 208, 201, 27, 248, 3, 76, 249, 196
106 DATA073, 17, 208, 9, 32, 141, 17, 208, 173
107 DATA24, 208, 9, 1, 141, 24, 208, 169, 151, 141
108 DATA18, 208, 169, 1, 141, 25, 208, 194
109 DATA65, 184, 176, 184, 64, 173, 17, 208, 41
110 DATA223, 141, 1, 17, 208, 169, 21, 141, 24, 208
111 DATA69, 0, 141, 18, 208, 76, 238, 196
112 DATA120, 169, 49, 141, 20, 3, 169, 234, 141
113 DATA21, 3, 173, 17, 208, 41, 223, 141, 17
114 DATA208, 173, 24, 208, 41, 247, 141, 24
115 DATA208, 173, 26, 208, 41, 254, 141, 26, 208
116 DATA88, 96, -1

```

Ski slope

This game for the unexpanded Vic 20 comes from Michael Murphy of Westport

```

5 PRINT"SKI-SLOPE"
10 PRINT"USE CURSOR KEYS FOR
15 PRINT"K=SLOW SPEED<STARTING SPEED>."
20 PRINT"Z=MEDIUM SPEED."
25 PRINT"X=TOP SPEED."

```

BY KIRILL

RIGHT."

The object of Ski-Slope is to avoid the trees for as long as possible while collecting hearts and diamonds. If you take a jump you get extra points, but to do this you must be going at least at medium speed. You get a bonus life after 3000 points, and

the game changes after three minutes. Use the cursor keys to move left and right, and control your speed with X for slow, Z for medium and C for top speed. Break a leg!

Continued on page 44


```

3100 POKE36878,15
3105 POKE 36877,0
3110 POKE 36876,220
3120 FOR M=1TO5:NEXT
3130 POKE 36876,8:POKE 36877,129:POKE36878,6
3140 RETURN
3499 REM JUMP
3500 IF 0=15 THEN 100
3510 IF 0=1THEN BR=5
3520 IF 0=10 THEN BR=4
3525 POKE L-22,32
3530 OSUB 1000:POKE L,8:POKE L-22,32
3535 FORPA=1TO9:NEXT
3540 FOR QW=1TO8R
3545 OSUB 1000
3570 FORPA=1TO 0:NEXT
3580 POKE L,8:IF QW=1THEH POKE L-44,102
3590 POKE L-22,88
3600 NEXT
3610 IF PEEK(L)+22=88THEH 360
3615 SC=SC+50
3617 IF 0=1THEN SD=SC+50
3619 JP=JP4]
3620 GOTO 100

```

Bongo Maniac

Please show your support for programs from
Art, Comedy, and Student Health.

Three hours
THREE THREE short sound and graphic routines should be incorporated into your early lessons.

The first is Computer Master, which is the word of a computer master word.

The second is Sound and Colour, which gives a synchronised sound and colour effect.

The last is *Bonge-Donge*, which represents the sound of someone tearing wildly one's hair.

Street Bomber

STYLISH ROMANCES is a service of **W.H. Smith**

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which your aeroplane is running out of fuel and you have to bomb the buildings below you to rabbit in order to make a safe landing.

Use F1 to drop bombs.
Program moves
Later P1: level of play

Lines 3-6: define characters
Line 300-410: set up screen
Lines 411-415: control movement
Lines 416-480: drop bombs
Lines 2000-20000: sound effects
Variable A = plane position, P = bomb position, R2M2C2 = bombs left.

```

0 INPUT"LEVEL 1-EASY 2-HARD 3-IMPOSSIBLE";R#
1 IFR#="1" THEN BOMB=500
2 IFR#="2" THEN BOMB=300
3 PRINT"PLEASE WAIT"; IFR#="3" THEN BOMB=200
4 POKE36334,PEEK(36334)AND254:POKE1,PEEK(1)AND251:FORJ=8TO2800:
POKE12298+J,PEEK(53248+J)
5 NEXT:POKE1,PEEK(1)OR4:POKE56334,PEEK(56334)OR1:FORJ=12288TO12295:
BEND:POKE1,J:HEXT
6 DATA 0,128,192,252,170,127,64,0
7 FORJ=272:25
8 FORJ=1TO360:NEXT:POKE54273,17
90 PRINT"-----"
101 PRINT"-----"
102 PRINT"-----"
103 PRINT"-----"
104 PRINT"-----"
105 PRINT"-----"
106 PRINT"-----"
107 PRINT"-----"
108 PRINT"-----"
109 PRINT"-----"
110 PRINT"-----"
111 PRINT"-----"
112 PRINT"-----"
113 PRINT"-----"
114 FORJ=1TO2823:POKE1,0:POKE+54272,1:POKE+1,32
115 IFPEEK(8+J)C32THEH2880
116 GETR1:IFR#C1:IFR#110
117 IFR#C0:THEH0TO120
118 PRINT"-----"
119 HEXT
120 BOMB=BOMB-1:POKE1,0:FORP=R+48TO8+1999STEP48:IFP>1994THEH0TO158
121 POKEP+54272,1:POKEP,81:POKEP+40,32:POKEA,0
122 IFPEEK(8+40)C32THEH0PEKEP+40,32:GOSUB1989:GOT158
123 HEXT
124 FORP=40,32:POKEP,32:GOT118
1249 POKEP,42:POKE54296,15
1251 FORI=8TO8:POKE54277,8:POKE54276,129
1252 FORG=1TO199:HEXTG:POKE54273,6:POKE54272,295
1253 POKE54276,8:HEXTI:RETURN
1260 POKE1,42:POKE54296,15
1261 FORI=8TO8:POKE54277,15:POKE54276,129
1262 FORG=1TO2099:HEXTG:POKE54273,6:POKE54272,295
1263 POKE54276,8:HEXTI:PRINT"DUHLUCKY":T=1:FORJ=1TO1699:NEXT:
BOMB=400:GOT107
1269 FORD=1TO18:POKE54277,15:POKE54276,33:FORI=39TO1999STEP2:
POKE54273,1:HEXTI
1281 POKE54276,8:HEXTG:PRINT"EWELL ZONE":FORG=1TO1699:NEXT:GOT107
1284 R1:R2

```

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DISK SPECIAL

A collection of features on disk software and hardware including an easy-to-enter book contest — in the first sector.

Slipping a disk too many

Pete Gerrard looks at Hoppy games, and on the whole is pretty much disk-gusted

When a program has had a fair amount of pre-release type preprinted around it, it comes as something of a relief when the programs concerned actually lives up to expectations. Such was the case with Commodore's International Soccer cartridge.

However, when the program does not perform as the press releases, hand-outs and pre-release publicity would have us believe, then the disappointment with the program is that much larger. After in *International* falls regrettably into this latter category.

Written by the same programmer as *Adventure's* earlier success *Maze Mania*, this disk and joystick oriented game does however quite a good sounding score, albeit very poorly recorded around the screen. The game starts when an animated Alice jumps down a rabbit warren and falls down and down and down. You have to move her around and collect blankets, keys, hand and drink, while avoiding bumping into lamps and pictures. When Alice lands, you then have to use the keys collected earlier to move through a variety of doors of different sizes (which is where the hand and disk come in, to make your character grow and shrink, in size, to find rooms which look bizarre to say the least).

Alice's Adventures

Being hit by a flying clutch signals the end of this part of the game, and you are presented with a few lines of text from the Alice in Wonderland book while waiting for the next part of the program to load.

This time you're not in the garden, with a cheshire cat grinning smugly at you while a pipe-smoking caterpillar blows deadly stink rings everywhere. Alice has to jump around and collect bread-and-butter flies and smacking butterflies (which will occasionally turn croquet balls in part four of the game), avoiding the aforementioned stink rings and seeds which these particularly vicious flowers keep sprouting everywhere.

The third part of the program I found to be the most tedious of them all. The action has now moved on to a chess board, featuring Alice and two white knights on one side, and Twiddlebottom and Twiddlebottom

(with a little help from the Jabberwocky) on the other. Alice has to get from one side of the board to the other, using the knights to temporarily restrain her opponents. Her speed of movement is limited to one square at a time, and once you've put a knight on the Queen's Root, 7 squares it appears impossible to move it again, a feature, perhaps?

The final part of the game is a ridiculous game of croquet, complete with Banbury cross sticks that we hedgehogs as croquet balls.

Two levels of skill are offered to you at the start of the game, although there doesn't appear to be much difference between any of them that I could detect. Not a game I can imagine wanting to play often; nice graphics, shame about the game.

Regular readers of this illustrious magazine will recall a review a few months ago of a game called *Forbidden Forest*, written by one Paul Norman, and released over here by *Adeloponic*. The review was pretty favourable, although the hope was expressed that there might be some better software on the way shortly.

Well, *Caveats of Knobblia* is the next offering from young Norman, and if the standard of this game is anything to go by, he's a mighty fine programmatic who is improving all the time. This is essentially an adventure game, but with one major difference from most of them. Not only

does it rely entirely on the use of graphics, but also you only control over the player is via a joystick rather than the keyboard.

You have a number of caverns to explore, and these are depicted on the screen in a glorious 3 dimensional display, which scrolls in all directions as you move your hero around the place. He can throw and climb ropes (which produces some hideously graphical displays at times), crawl along on his stomach, jump all over the place, and also shoot any of the many nasties that come at him. Falls of a great distance are to be avoided, as is jumping your head on a rock above you. Five lives are awarded in all, and you're reminded of any lives lost by a number of tombstones at the top of the caverns.

Freddie

This is not an easy game to play, and the beginner will do well to practice moving about at the top of the caverns before ploughing in and taking on the game itself. In one place, where the going gets rather tricky, there is an oscillator to help you out. Also, and this is a criticism of all games that only use the joystick to perform a number of different tasks, it is all too easy to try and move the oscillator and end up placing a nail on the door of a tomb.

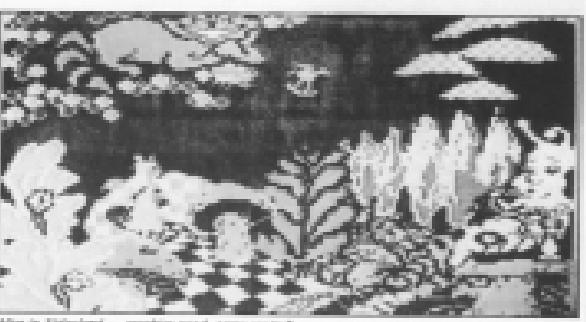
That aside, this is a very worthy follow up to *Forbidden Forest*, and if enough games enthusiasts have got disk drives it should do very well indeed.

Another from *Adeloponic*, *Freddie* is aptly named. I guarantee that anyone who buys a copy of this game will be driven frantic by the musical background that accompanies it.

If this game was played in total silence, it would be a reasonable but not a great piece of software. However, each of the ten screens has a (surprisingly) different piece of music being played while you're on that screen, and the quality of the music is quite superb. Some of the tracks being played are a little obscure (*Gallopdance* by Paul Simon surely won't be known by too many people), but their rendering is simply wonderful.

Even on the initial display, before you start playing the game, there's a spindly rendition of *Crazy Little Thing Called Love*, the Queen number.

Still, the game itself, *Freddie*, is a



Alice in Twiddlebottom — graphics good, game pretty?

telephone engineer, one day happens to stumble across a magical telephone network. Piles of gold sit around all over the place, and you have to get them all. However, these piles of gold are guarded by various creatures, and one touch is too sharp deadly. Life is made a little more complicated by the fact that you can't go through telephone poles, and have to climb up and around them, whereas the phone can march straight through.

Interlude

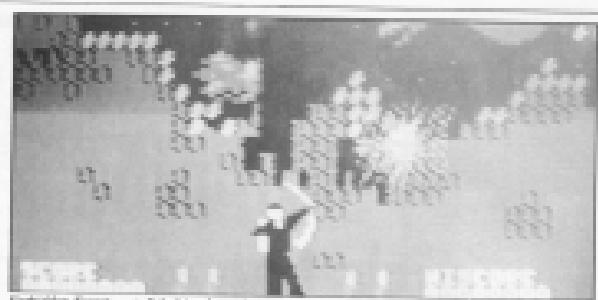
Apart from the main, nothing much changes from level to level. It does get a bit harder, but not by much. An interesting interlude is offered between some of the levels, which it's worth playing to get to see. On the first interlude, we see our hero being chased and finally caught by a massive frog, but on the second one Freddie has his revenge, and after being chased off one side of the screen by the frog he reappears driving a massive tank and blasting the frog to mincemeat.

So, for all those who like trying to make the most in one, a game to keep an eye out and ear out for.

One company who've gone into disk-based games in a big way is Microdead down in Cornwall, and the rest of the disk games looked at this month belong to them. Microdead, as we all should know, made their name by producing a lot of good Dragon software. Unfortunately, with only a couple of exceptions, they don't seem to have got the hang of the 80's yet.

Grabber is an unusual variation on the maze theme, with two mazes instead of one. Eighty treasures are divided up between the mazes, and it is your job to go around and collect all of them. However, the mazes are guarded by what Microdead refer to as 'Ghoups', and they have a habit not only of bumping into you and killing you, but also of snatching all sorts your treasures after you've safely snatched in away.

You snap around from maze to maze by pressing the fire button, which is a convenient way of getting out of the way of a particularly nasty ghoup. On some of the later levels the only possible way of completing the game is by continuously snapping around. This is because in one maze you're represented by a conventional looking character, who can't walk through



Freddie's Gold - a Microdead present

walls, while the character in the other maze is simply a square box which has the magical ability to break walls aside as though they were matchsticks. Then by jumping from one character to another you can get your way out of some pretty sticky situations indeed.

Swish!

Some pretty crude graphics are used throughout the game; I expect to lose a life or something a bit more dramatic than just expanding a square in both directions. Also the sound, as with a lot of Microdead games, is ridiculous bordering on the cartoonish, and although I don't particularly like playing games in silence this is one occasion when I happily break all the rules and played on in blessed peace and quiet.

As a software start though, a company whose reputation promises better than this.

Now see a full page advertisement for a game, and you immediately begin to think that perhaps that game is going to be a bit special. *Assassins 2000* does not live up to its advertising, and indeed it was quite hard to remember what the game was about without referring to my notes when it came to writing the review; but the sign of a good game.

It is one of those offerings where you start off in the middle of the screen, and have to shoot the variety of aliens who march relentlessly towards you all the time. In common with most Microdead disk games these are absolutely no instructions supplied, either with the disk or on the screen, so a couple of lives will be lost while

you try and figure out which port the joystick ought to go in. Port 2 is the answer, if you happen to buy a copy. Another peculiarity about this game is that it started the cassette version going when it finished loading. Why is that? It's totally unnecessary, and you can only assume that the programme isn't yet totally at home with the disk.

Nothing in particular changes from level to level. More aliens appear in the time honoured tradition, but nothing else seems to happen. A game that it, and everyone else here at the mighty Gernand games centre, became very quickly tired with.

Most of you will probably be familiar with the game of *Pringa*, as *Bengie* as it is sometimes called, but for the benefit of the Tibetan Monkies amongst us, here goes with a summary of *Pringa*.

Swedes

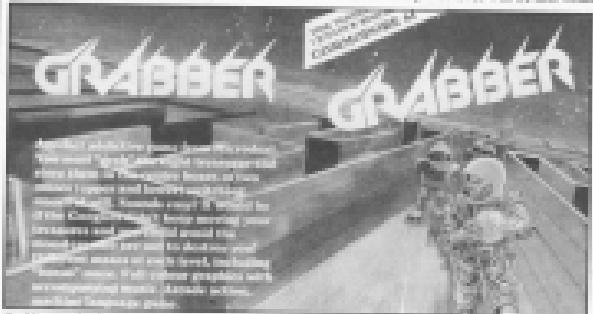
The game takes place in the frozen wastes of the arctic, where you, a cheerful little-piggy, suddenly find yourself being attacked by hordes of ferocious vikings. In order to get rid of the mob you have to beat blocks of ice around, and hopefully hit the Vikings against the sides of the screen by doing so. Points are scored for every viking killed, and in this Microdead version of the game you also get points for every block of ice missed, regardless of whether or not it succeeds in getting rid of one of the enemies.

The original game I liked, and you remember spending many a fun power session in a van bid to get my name on the highest score list. This, however, is not a worthy version of that original program.

Not a game that went down well here, and may our games box never meet up groups I can't really see this doing very well.

The remaining Microdead games are definitely in a class above the previous ones, and *Bengie Bangle* had me playing it for a long, long time.

You control a little man whose job it is to collect ten keys from the Chamber of Pudding. The Chamber of Pudding is in fact little more than a collection of yellow planks across the screen, with a handy transporter at the bottom to take you back up to the top should you step on it. Five planks in all, with two keys per plank, each one is guarded by something or other. Microdead refers to them as floating arms,



Grabber - does it get simpler by the googles?

Estimating beta and gamma error

Your little man has the ability to move left or right, jump or dash, and fire any of the hazards that confront him. If you manage to collect all the key items you are then taken onto the next level, which is very difficult to get through. You have to run along a series of blocks, watching out for drops of acid and the four demons that guard this level. Unfortunately, the drops of acid appear at random, and when you run off the top of the screen and they move very quickly downwards, you can guarantee an losing at least one life on this level.

Lesson 1

If you manage to complete this it's back to the first stage again, but with more nations out to get you. An interesting and entertaining game making special in the way of graphics or sound, but a fine idea and one that has been nicely implemented.

This Caulker shaggy seems to get everywhere, and now we find him sleepin Caulker in Square, a game that bears more than a passing resemblance to Jasper from Littlestone.

Chidhuri has been sent on a mission of
plunder in the name of the Buddhist order.

Content in Context

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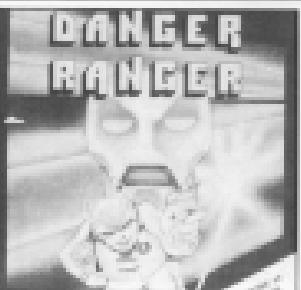
in something's going to another country

THIS IS YOUR chance to win a copy of *Sunshine's best-selling *Commodore 64 Disk Companion**, by David Lawrence and Mark England. The book is the authoritative guide to making the most of the Commodore 64, with simple introductions to the theory and practice of disk storage, backed up with programs for manipulating the disk directory, recovering "lost" data, changing files and displaying the structure of the disk operating system.

If you can't tell the

DANGER BAHEER

George Washington and George Mason



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system. On landing on such planets, you have to refuel Gulliver's ship by flying around in your jet-propelled way to a number of fuel dumps conveniently stowed on the screen. To make life more interesting, you can only carry one fuel pod at a time, and the longer you take to collect them all, the more meteors come flying across the screen at you. You can shoot them down, but by the time you are on the last couple of pods there's so many of them that you'll be lucky to get away.

then that you've since found no less or less one life.

Digitized by srujanika@gmail.com

After acquiring enough fuel, you have to climb around and collect an insult treasure as you can before you're forced to take off and land on another planet. To escape the notion of having every level looking remarkably the same, occasionally you will get an engine fault message and have to land a piloted shuttle in certain spaces from where your mission coordinates are given on the screen. Meanwhile, the evil Minutemen have planned a botched air-purification system that's about to blow up, so this shuttle is also involved in a race against time, to get back and take off before the bomb explodes.

This is quite a challenge. Still, I usually manage to survive.

After that it's back to the main game again, and more heads down, no concept, mindless alien blasting. Good fun, even if it isn't particularly original.

As an overall conclusion, the standard of disk-based software isn't yet up to the highest quality arcade games, and once again we can only sit back and wait for the better software that is sure to come from someone, somewhere. ■

- What is the name of the process used for dividing a disk into "tracks"?
- What is the meaning of the abbreviation RAM?
- What is the microprocessor found in the 1341 disk drive?
- How many bytes can be stored in one sector of a 1341 disk?
- How many tracks are there on a formatted disk?
- Is it dangerous to remove a disk when the LED light or the GREEN light is lit?
- What is the primary name of CoCo3's 3.5" "fat" disk drive?
- And what is the name of the 1341's immediate replacement?
- What is the 1341's normal device number?
- Which is not a disk command: SCRATCH; VALIDATE; ERASE; MOVE; COPY

Takeover (complete in 10 words or less) — "You should never
do a diet."

Delving into disk drives

A further adaptation from the Commodore 64 Disk Companion
 by David Lawrence and Mark England

THE FIRST use that anyone makes of a disk is to store programs. There is no doubt that, if you enjoy computing and use your 64 more than occasionally, the difference in speed with which you can access programs makes the cost of a disk drive worthwhile compared to a cassette recorder.

At the same time, it is always surprising how little care most people take in the keeping of programs that they have spent long periods developing. Failing to save regular updates when a program is being developed, failing to check that a program has been properly saved, keeping only one copy of important programs and abusing disks by leaving them severely exposed to the elements. Given below are one or two common sense rules when it comes to saving programs.

As you develop new programs, **SAVE** them regularly. Like any other micro-computer, the 64 can lose programs if there is a momentary surge in the electricity supply, or if someone pulls the plug, or more bizarrely in your programming you manage to upset the 64's equilibrium. How much work you will have lost will depend on how long it has been since you last saved your program. If a program is being created rapidly, you should not normally expect to receive lines for more than 10 minutes without saving the program. When a program is being debugged, so that relatively frequent changes are being made, perhaps you might increase that period to half-an-hour. It really depends on how much you are prepared to lose, but you can depend on the fact that if you do not save programs regularly you will, sooner or later, lose an important program that has taken a long time to enter.

SAVING

In order to embark on a policy of **SAVING** programs regularly, you need first to know the command which will store a program on the disk drive. If you have previously been working with a *Datasat* cassette recorder, then you will have become used to the format:

SAVE "<PROGRAM NAME>"

to **SAVE** a program on:

LOAD "<PROGRAM NAME>"

when **LOADing** a program back into memory.

With your disk drive installed, the situation changes slightly. While the 64 can work perfectly well with the 1541, it is designed to

know which of them is being addressed at any one time.

Devices

To overcome this, 1541 drives are built with the ability to change their device numbers so that a command can, for example, be issued in the form:

SAVE "<PROGRAM>" 8

to access one of the drives, leaving device eight completely untouched. There are two ways in which disk drive device numbers can be changed, in hardware and in software, that is to say you can either make a modification to the equipment itself or you can use a program to make a temporary change. Of the two, if you are going to be permanently using more than one drive, the hardware solution is by far the best. It involves making a small cut in a single track of the printed circuit board inside the drive. Details of this are given in the 1541 manual but they are not very clear and, frankly, we would recommend that when you purchase your second 1541 you do so on the understanding that the dealer will do the necessary work involved. If you dealer backs in the idea then perhaps you might consider finding one who knows what he is doing.

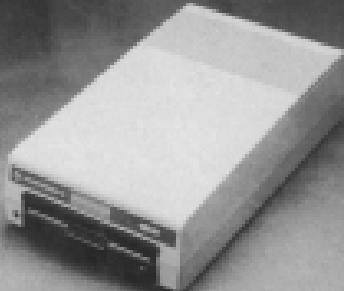
Programs

To change the device number of a disk drive with a program is not difficult (see Chapter 12), but it can become tiresome, since it has to be done every time the drive is switched on. Given this, if you are merely borrowing a friend's drive for the day, the software solution is a better one than ripping the drive to pieces.

To make saving a program easier and to encourage yourself to do it, it is a good idea to build a program saving facility into each program you develop, along the following lines:

1 **QUIT** ;

2 **SAVE "<PROGRAM NAME>" 8**



•第10章• 项目管理与控制

TTT&P

8. BURN
Including such a routine in a program has the virtue that you are unlikely to save the program under the wrong name due to a typing error. It can be saved simply by entering GOTO 2 as an added bonus, in which case that all your programs can be started with a minimum GOTO 1 if you do not wish to use BURN and wipe out any excess variables.

Two features of this routine need some explanation, the command `MOVEBY` and the modifier 'skip' at the beginning of the `REPEAT` macro.

One of the main reasons for building the **SAVE** routine into the program as shown is that it can then be combined with **VERIFY**. The purpose of **VERIFY** is to check that a program stored in a specified device is the same in every respect, as the program currently in memory, to that a program has been correctly **SAVE**d. The format of **VERIFY** is:

RIGHT "CROSS-REFERENCED",

© 2000 by the author

where $P_{\text{max}} = 1000$ is the value of the maximum power of the system.

program stored on the device. Note that it is not important that the name of the program on the disk is the same as the name that you have assigned to the program in memory. The name of the program is stored on the disk's directory list with the program itself, and no name is stored in the memory of the PC for the current program. All you are doing is giving the disk above the information to find a particular file.

100

Unlike the cassette reader, the disk drive requires no work from the user when VERIFY is employed. In the little SAVI routine in the previous section, the drive will automatically search out the program which has been SAVEd without the user intervention.

57

NETTWERK

- 8 Type of file in use
 - 0 = Unused or DELETED file
 - 1 = Unchecked SEQuential file
 - 2 = Unchecked PBO/Code file
 - 3 = Unchecked SElf file
 - 4 = Unchecked RELeative file
 - 128 = Closed DELETED file
 - 129 = Closed SEQuential file
 - 130 = Closed PBO/Code file
 - 131 = Closed SElf file
 - 132 = Closed RELeative file
- 9 Track of first block in file
- 10 Sector of first block in file
- 11 File name (padding with shifted spaces) **CHAR16H16S**
- 12 Relative files — track of first relative sector of file
 - Other file types — Not used
- 13 Relative files — Sector of first relative sector of file
 - Other file types — Not used
- 14 Relative files — Length of record
 - Other file types — Not used
- 23-24 Not used
- 26-27 Only used when data is 32-BITing or 16-BITing a file write "0000"
- 28-29 Number of blocks in this file

100

```

30 DIM CHRS(15) : CHR$ = " "
32 DIM TS(15)
33 FOR I = 0 TO 15 : TS(I) = I
34 PRINT CHRS(15) TS(15)
35 NEXT
36 END

1000 REM : -----
1010 REM BUILD THE DIRECTORY
1020 REM : -----
1030 REM : -----
1040 DF = 0
1050 OPEN LIBRARY: " "
1060 GET #5, TS : GET #LTS
1070 GET #5, TS : GET #LTS
1080 IF TS = "-" THEN CLOSE #5 : RETURN
1090 GET #5, TS : GET #LTS
1100 GET #5, TS
1110 IF TS = "MORSE1" AND TS(0) = " "
1120 THEN 1060
1130 IF TS = "-" THEN 1060
1140 TS = "-"
1150 GET #5, TS
1160 IF TS > "-" THEN TS = TS + TS : GOTO 1120
1170 DIMDP = TS : DP = DP + 1
1180 DIMDP = TS : DP = DP + 1

```

In one respect the disk drive is a little less useful to us than the Datasspace recorder. When you run an *auto* program for a repeated view on tape, all that you have to do is rewind the tape and issue the **SAVE** command — the previous program will be overwritten. Not so with the disk drive, for it is specifically designed to prevent you from making the mistake of accidentally overwriting a file by unwittingly **SAVING** another of the same name. This is fine in most circumstances but when successive versions of a program are **SAVED** it can become a little tiresome. The Disk Operating System (DOS) provides a facility to overcome this problem in the form of the modifier **"@1"** attached to the front of the name of a file — either a program file or any of the other kinds described later — with the convention **filename@1**.

When the DOS comes across a filename which begins with "%%", it immediately searches the current disk to see whether there is a program with the same name as the specified filename less the "%%". If there is, then the program is stored internally. If there is no program of the same name, the program being SEARCHED replaces it on the disk - the previous version will not be accessible when it is executed.

卷之三

A note of caution has to be sounded over the use of "BFS", due to the fact that the software which runs the facility has a "bug". On disks which are becoming full, you will sometimes find that the use of "BFS" will successfully clear the file named, but will not always when there is a click on the disk. The reason for this is that "BFS" seems, under some circumstances, to fail to register in the Block Allocation Map (BAM) the correct picture of the sectors on the disk which it has used for which it has freed, so that subsequent writes are ~~SAVED~~ in places they should not be.

There are several solutions to this problem. It includes a VALIDATE procedure.

used in line 1 of the basic SAVITL routine earlier in this article. This reconstructs the B&M and ensures that there will be no corruption, the only drawback being that it can take longer to **VALIDATE** than it does to format a disk. 2) Start **TESTIT** by calling the program something like **TESTIT1** and, each time you **SAVITL**, **LIST** line 2 and change the number on the end of the program name. This is probably simple but it does take up a lot of disk space while a program is being developed. 3) Ignore the flag... it will vary seldom, if ever, after you **VALIDATE** all of all, one **SAVITL** and **SAVITCH**, two **TESTIT** and **TESTCH** commands, to create a much more logical and accurate method of **SAVITL** programs and other types of file.

THEORY

The process of keeping a valuable program safe does not end once you have stored it on a single disk. Disk can be damaged or accidentally corrupted in some way. If a program is worth keeping, then you should always have a second copy of it stored somewhere safely away from where you normally keep your disks.

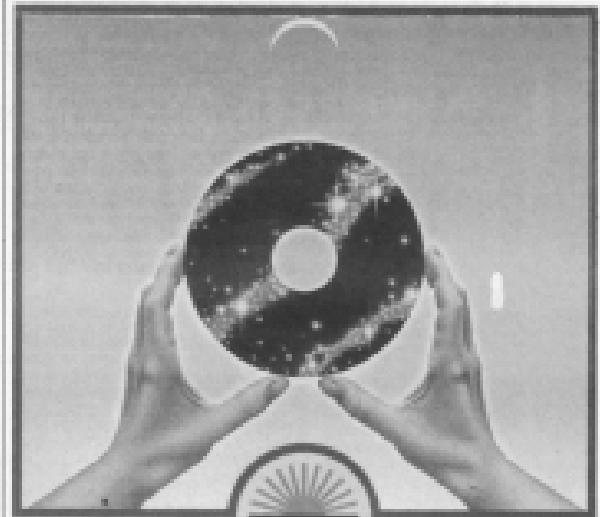
"In addition, don't neglect the relative safety and reliability of tape for backing copies of important material. A serious disk drive fault can be extremely frustrating if you only copies of the required programs are on disk. If experience is anything to go by, more people starting out with a disk drive will ignore this advice, at least until the first occasion on which they actually lose a program on a media they have been working on recently."

In last month's article, we included a brief description of the click discovery. Since then

```

10 OPEN 15,15 : OPEN 8,8,14
20 DIM D(100)
30 GOSUB 1000
40 FOR I = 0 TO DP
50 T = ASC(D(I)) : IF T>128 AND
60 T<=160 THEN PRINT MEAN
70 GOSUB 4,16
80 NEXT
90 CLOSE 8 : CLOSE 15
100 END
1000 REM = -----
1001 REM READ DIR. INTO D(8)
1002 REM -----
1003 DP = 1 : INT = 18 : POS = 1
1004 TR = INT / 8 = INT
1005 PRINT #15,"TR" : S$=TR$A
1006 PRINT #15,"TR" : P$=TR$B
1007 GET=TR : INT =
1008 ASC(UTR) : CH1000
1009 GET=TR : INT =
1010 ASC(UTR) : CH1000
1011 IF TR = 16 AND S$=8 THEN 1040
1012 PRINT #15,"TR" : P$=TR$B
1013 FOR I = 0 TO 7
1014 GET=TR,I : GET=TR,I,TR
1015 DP = DP + 1
1016 GOSUB 15
1017 FOR J = 0 TO 29
1018 GET=S$TR
1019 CH1000 = CH1000+LEFT$(
1020 (TR-CH1000,11)
1021 NEXT J
1022 IF INT=8 THEN 1040
1023 PRINT #15,"TR"
1024 GOSUB 15

```



we have taken the function of the directory, in allowing the user to examine the contents of a disk and in allowing the Disk Operating System to find specified files on the disk, under the greatest. In this section we shall take a brief look at the directory, its layout and the way in which it may be directly accessed by the user.

In last month's article the overall layout of the tracks which make up the directory is given. Examining the table shows that the directory is held on track 18 of the disk, beginning at sector 0. The first sector of the directory is given over to the Block Addressing block, but the remainder of track 18 is reserved for the details of individual files on the disk. Each of these sectors is capable of holding the details of eight files. Given that there are 17 sectors on track 18 of the disk, simple arithmetic shows that the maximum number of files which the disk can hold, regardless of how much space is free, is 136, or 144.

Within the overall structure of the directory, the format of the entry for a single file is given in Table 1.

The file types, stored in byte 8 of the entry, can be made use of in an MS-BASIC program, where file types are altered to separate files which were registered in the directory as having been deleted.

Formats

The first track and sector bytes, and the filename field, can be used by a program to trace through the sectors allocated to each particular file and then to display the name of the relevant file against each sector on the disk. In normal use, the purpose of these bytes is to allow the DOS to search through the directory for a specified filename and then to find the beginning of a file which is then instructed to access.

Relative files are in fact made up of two quite separate sections, one containing the data and the other recording where the sectors holding the data are on the disk. The table shows that the start address of this second part of a relative file is held in bytes 19 and 20, while the fixed length of each record in a relative file is held in bytes 21-24.

Bytes 25 and 26 are now on us, but their use is quite simple. When a file is created or opened, using the 'GET' command to specify that any previous file of the same name and type is to be overwritten, these bytes serve the purpose of holding the starting track and sector until the new file has been created.

Directory

Finally, when the directory is displayed for the user, the size of each file in terms of the sectors used is given with it, and this figure is stored in bytes 28 and 29 of the file entry.

In all, each individual file entry in the directory takes up 39 bytes (39/25). In order to span the eight possible entries regularly within the 256 bytes of the sector, two extra bytes are added to the end of the first seven entries. These bytes contain no useful information, their purpose is solely to allow the DOS to scan along the directory in steps of 32 bytes.

There are two main ways in which the directory may be read: (1) By loading it into memory with the command LOAD "3", DEV#, where DEV# is the device number of the particular drive. When loaded in this way, the directory is treated in much the same manner as a program file, and any program presently in memory is lost. Loading is possible because the "3" indicates to the DOS that it has to translate the directory as it is on the disk into program file format, treating each entry as if it were a

program line, supplying the zero bytes to finish lines and space for link bytes. In other words, the format supplied to the 64 when the LOAD "3" command is entered is entirely different to the format of the directory as on the disk itself.

(2) By reading the directory from the disk under program control. The 'DOS support' software provided with later 1541s provides a neat means to accomplish this and print the contents of the directory to the screen without interference to the current program. It is, however, quite possible to read the directory from BASIC. Given in Figure Two are two short programs which will load the contents of the directory into an array, the first by reading the directory file much as a program file would be read (see Chapter 8), and the second reading the disk more directly.

Arrays

The DOS supplies the directory in the form of a program file, with every filename built into a separate line and the whole thing properly structured with link bytes and so forth. There is no point in trying to compare what is being read by the GET statements with the contents of the table at the beginning of the chapter, since there is almost no relation between the two. What is being read here is not the directory itself but the translated version of the directory supplied by the DOS.

Figure Three gives a program for reading an array from disk.

Lines 1000-1040: This section controls the execution of the program. It does two main functions: to open the user channel and call for the allocation of a disk memory buffer, to call up the next module, and then to print out selected lines from the array DOS.

Lines 1000-1200: The overall function is to read the contents of the directory into the array DOS.

Lines 1000-1060: The contents of a single sector are read into the buffer and the buffer pointer set to the beginning of the buffer. The first sector to be read will be track 18, sector 0.

Lines 1000-10900: The first two bytes of the sector, which are pointers, are obtained and stored in the two variables NT and NS, standing for Next Track and Next Sector. On the first pass through the module, the sector picked up will be the RAM, so the program immediately moves on to the next sector.

Fig 4

```

10000 CLOAD 3000
10000 IBM=0
10000 IBM READ 1541 DIRECTORY
10000 IBM=0
10000 DP=0
30000 OPEN ALDEN,0,"3"
30000 GET #1,TS : GET #1,TS
30000 GET #1,TS : GET #1,TS
30000 IF TS="1541" THEN CLOSE #1
      RETURN
30000 GET #1,TS : GET #1,TS
30000 GET #1,TS
30000 IF The .SEARCH(M) AND TS="1541"
      THEN 1000

```

Lines 1100-1100: The buffer pointer is set back to the beginning of the block, then the eight file entries contained in the sector are successively read. This involves discarding the two unused leading bytes and then examining the next 30 characters. The 30-character entry is then placed in a line of the source EBL.

Lines 1050-1096: If the next track pointer indicates track 0 at this stage it is a sign that the sector which has just been dealt with is the last in the directory.

Given the flexibility of the means provided by the LOAD "P" method and the D05 support facility to print the directory, there are few occasions on which it is worth reading the directory directly. One use, however, might be whenever an operation is to be performed on multiple files. Very few commands could be used with the pattern matching facilities that the 1540 supports. With a little bit of programming, however, it is relatively easy to construct routines to carry out an operation on a whole series of files which match a certain pattern, and this depends on the ability to read and make use of the information contained in the directory. Figure 4 gives a program which will repeat an operation on a number of files.

Figure 4 gives a program which will repeat an operation on a number of files.

Lines 31000-31150: The module to read the filenames from the directory using the first of the two methods illustrated in the second section of this article.

Lines 2299-23108 These lines comprise two strings, one of which is the name of a file taken from the directory, the second being a string input in the next module

which is the pattern against which all the disk files are to be matched. The pattern may be set up using the "0" and "1" indicators. The only important property of the module is the value of the variable `SAMBL`. If the filename being considered by the module matches the pattern, then the value of `SAMBL` will be left at minus one, otherwise it will be zero when execution of the module ends.

Line 24000-24999. This section is the main control module, which first calls up the module at line 10000 or read the directory into the array DB, then reads successive file names in the preceding module for comparison with the pattern input by the user. An entire facility is provided in the form of the creation of TBL, which records the type of the file. No use is made of this in the current program but you might like to employ it to exclude certain file types from an operation, regardless of their name.

In actual use, there would need to be another module specifying exactly what action was to be performed on a file which matched the pattern. This *core action* would be written as another subroutine and would be called by the `CGISUB` at line 1180. Note: Since there is no valid line number at 1180, the routine cannot be run successfully in its present form — you must first add the new module specifying the action to be performed. Given below is an example procedure illustrating the use of the `SPLIT` facility.

10 lines and **SAVE** the REPEAT program when done.

2) Take a disk which contains no important files (something may go wrong) or format a new disk and **SAVE** on it three files with different names — the content of the files is irrelevant but the filenames should be no more than 16 characters long.

By LOA'd the repeat facility and amount is
By entering the following item as charged

```
14100 GOSUB 34000
14200 REM
14300 REM RENAME ALL FILES
14400 REM
14500 REM
14600 REM OPEN 13,10$,""
14700 REM C$= "RENAME.Z" + N$ + "
14800 REM " + N$ + "
14900 PRINT #13,C$;
15000 CLOSE #13
15100 RETURN
```

4) Run the recorded program under the name **TESTPAT1**.

To RUN the program and, when asked to enter the passkey, simply type RETURN.

which enters a single word, indicating that any filename will be acceptable as a match.

The *Comics of 20th Century*, by David Lawrence and Mark England, is published by Random House at £1.95.

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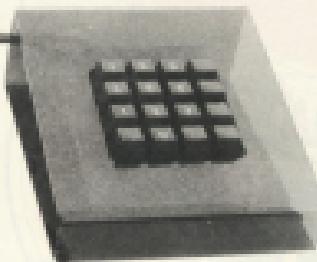
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第1章 项目管理概述 | 项目管理方法

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Other country-specific programs have been developed and implemented. Some mention the following from this report:

monomer a monomer PEG, 100 kDa (33.333 mol%), bis(2-hydroxyethyl)benzyl ether (1 mol%), and a large excess of water (distilled).

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As noted with other CFS research based
Health Information there are no clear findings

10

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Cracking the code

Book: *Mastering Machine Code on your Commodore 64*

Author: Mark Greenhield
Publisher: Interface
Cost: £7.95

Reviewer: E. Whitcombe

I am usually very wary of any book that claims to be able to teach you something quickly and easily, especially when the subject in question is M/C! However, in this instance, the author's claim is not too exaggerated.

The book is well laid out in sections that follow on quite well from each other. The style is easy on the brain and each new topic is adequately explained with example programs.

The book begins with a 'Tutorial' of all the Assembly commands and programming modes of the 6510 chip. Also included here is a listing of **SUPERMON** — a 6510 *Assembly* — for you to type in. Unfortunately, I could not get the program to work for me. Although it was being **LOADed** on the tape, it refused to come out of holding when added to **LOAD**. This is also a more obvious error that tries to start you off at the wrong memory location. If you don't have an assembler of your own to type in, you could have a problem.

Section 2 shows you how to use your new-found knowledge to great advantage. Topics covered include *Screen* *scrolls*, *Sprite* *manipulation*, *Interruptions*, *Music*, *Random* and *Hi-res* *graphics*. There is also a subsection showing how to add more *Basic* commands. All these subjects are well explained and are shown in work by some excellent routines that could easily be used to good effect within a larger program.

Section 3 contains all the *ROM* routines and explains how to use them. An Appendix has the usual contents — *directory* *maps*, *Kernel* *jump* *tables*, *ASCII* *charts*, etc.

Considering the subject matter, the book is very readable as well as being instructive and I think the author is to be congratulated for his efforts. For anyone wishing to learn M/C on the

64, I would recommend this book ... but with some reservations ... **COMMODORE** **SUPERMON** listing!

Manual labour

Book: *Getting the Most From Your VIC-20*

Author: Mark Lubach
Publisher: *Practical Electronics* (Micro Peripherals)
Cost: £8.95

Reviewer: David Stegeman

Here is a book that picks up where other guides and manuals leave off*. So great is the publisher's blurb. Personally, I would say that the manual it picks up from is the one supplied with the machine by Commodore. However, if you do not wish to delve quite so deep into the VIC as the Reference Guide takes you, then this book will make an excellent second or third addition to your computing library.

Section one takes you step by step through many small programs. The programs range from simple print runs and how to display them effectively, to quadratic equations, maze designs and even how to incorporate a joystick into your programs. The chapter on graphics is

charming, you should have no problems entering them. One thing I like *Feel* however, is that some of the programs could be tidied up a little and more use could have been made of multi-statement lines. Otherwise, an excellent book for the beginner, and quite a useful book for the more advanced user.

Worthy but dull

Book: *Basic Reference for Commodore Computers*

Author: Eddie Adams
Publisher: John Wiley
Cost: £10.95

Reviewer: Dennis Dacewicz

Eddie Adams makes no claims to having the *VIC-20* — *CBM*'s graphics or sound potential. His *Basic Reference* contains a "no frills" library of modules designed to facilitate sorting and conversion operations of the "square kilometers to square miles" and "Dynes to Newtons" type. They will run on most members of the Commodore 64 family and, with minor amendments, on many other 'Basic' micros.

If you are the kind of chap who regularly needs to convert, say, *Rankine* degrees into *British* degrees, you will probably be able to do so on

A useful reference tool to have on your shelf, should you ever need a program to calculate your annihilation schedule or render millions of memory lines. *Metrics* per square metre, *tonnes*, *metres*, but one which, I fear, offers little genuine benefit and will less fun value to the average micro user.

Well in advance

Book: *The Advanced Commodore 64 Handbook*

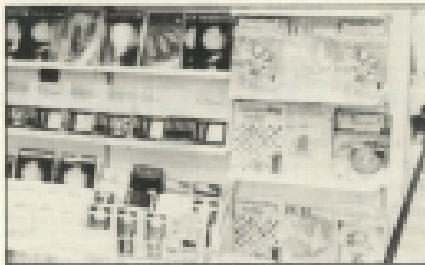
Author: Peter Japton and Fraser Robinson
Publisher: Century
Cost: £6.95

Reviewer: Phil Bowler

Let us suppose you are an enthusiastic user of the 64, who is proficient in *Basic* and would like to go further. You have read *Commodore's Programmer's Reference Guide* but finds parts of it too technical. You would particularly like to experiment with sound and *Hi-res* *graphics*, in *Basic* and *Assembly*, to understand the *Basic* *Interpreter* and to add a few extra commands to *Basic*. The trouble is that you have been unable to find a suitable book on *Basic* *plus*.

Look no further! This superb volume is the very thing you need. Intended as a companion to the *Commodore 64 Handbook* by the same author, it stands on its own as a well-written, informative and useful volume for any beginner's bookshelf. As well as covering the points mentioned earlier, it provides a comprehensive guide to the use of *data* and *pointers* in a manner that is superior to *Commodore's own writings*. Add to this numerous listings of program examples and utilities, and you have a publication which is hard to resist.

This is indeed a book to dip into at random and explore in depth. It is packed with information presented clearly and logically, with several helpful appendices. It would almost be worth £10.95 for the *Hi-res* routines alone. My only criticism is of the index, which is practically non-existent, but compared with the rest of the book this is a minor irritant. Highly recommended!



assistant, one of the clearest I have seen. Anyone who is unsure on just how to obtain and use *User Defined Graphics* should find that this section will answer about 99% of their questions.

In Section four, there are 18 application programs, ranging from *Ballistics* to *your tetrahedron in a math test*. All the programs should fit into the unexpanded *VIC* and, as character codes are used in the listings instead of control

paper pocket calculator in half the time. But ... one touch this.

— Adams has added a handy little routine that automatically corrects poor spelling of tricky words like *Fahrenheit* or *Brenner*.

The range of subjects covered in these 550 odd pages is impressive: topics include angles, arcs, business profits, capacity, energy, compound interest, logarithms, pressure, volume, measurements and many others.

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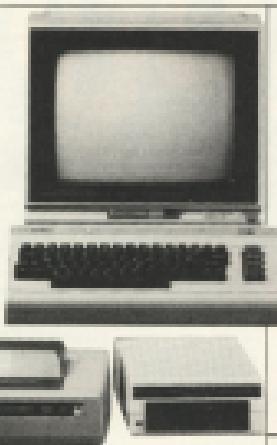
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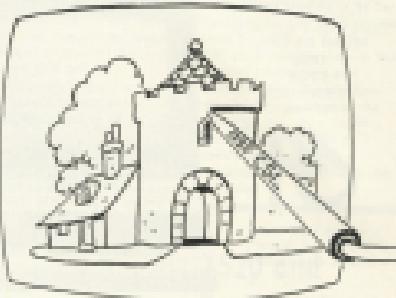


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30



MICRO POWER

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AND OTHER STUFF
MURKIN



DEMOCROPowerMicropower

Meet Percy & Monty

Win two games for the 32 from *Grenadier Graphics* in Tony Roberts' contest

LIFE IS never boring at the Hill Rock Miloco Club... this month they're all playing Dungeon Adventures, and things have become as heated that Xena, Yvonne and Zee have all built cardboard models of the Dungeon in an attempt to outdo the others.

One of them has got it wrong, however, and will come to a sticky end. Look at the three diagrams and decide which is the odd one out — each maze is viewed from a different angle, remember.

If you think you've solved the puzzle, complete the tie-breaker in an up, unusual and original manner in fifteen words or less, and send your entry with your name and address to: Competition Corner, Commando 2000, 12-13 Little Portland Street, London WC2B 3LD.

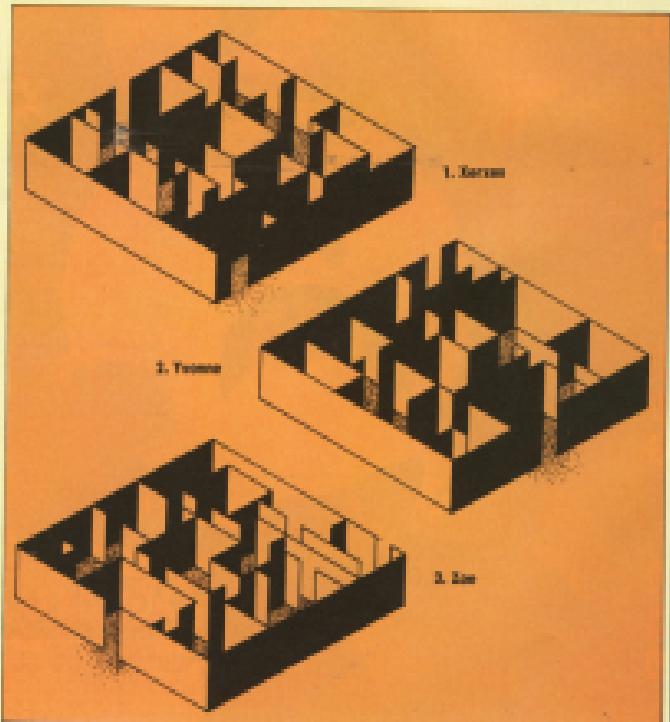
The lucky winners will each receive copies of the *Grenadier Graphics* games for the 32, *Percy the Petty Pigman* and *Monty Mole*, which cost £7.98 in the shops.

Percy the Petty Pigman is a fast-moving arcade game written by Tony Crocker, in which you must help Percy build his nest and avoid speedbumps, cars and other hazards. *Monty Mole* features Mr Arthur Scapilli and his Flying Pickets, out to stop poor Monty from collecting coal from the dangerous mines. It's another Tony Crocker spectacular.

So the tie-breaker is: 'I'd like to run a Grenadier through my 32 because ...'

Normal competition rules apply.

The winners of August's Microtest competition are Simon Jeffery of St Ansel, Carradale, Bannermouth, Ayrshire Region and Steve Cowell of Widnes. Both winners will receive a communications cartridge and modem which will enable the 32 to be linked to the Marconi network service.



Go for it with Hyper Biker.....real berm warfare



Now you can experience all the thrills, spills and spills of BMX racing without leaving your computer keyboard. Play on your own or with up to 3 friends to beat each other and the qualifying times set by the computer. There are 8 different events but you must qualify on each to move on to the next. Track features include, table tops, wheelie bars, ramps, speed bumps, obstacles and steep dips.

You have complete control of your pedals, handlebars and brakes so that you can jump, wheelie and really perform challenges many as you'll end up eating dirt.

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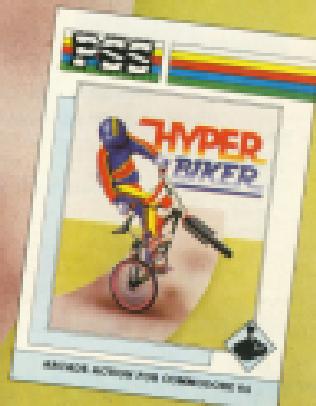


ENDO



EVENTS

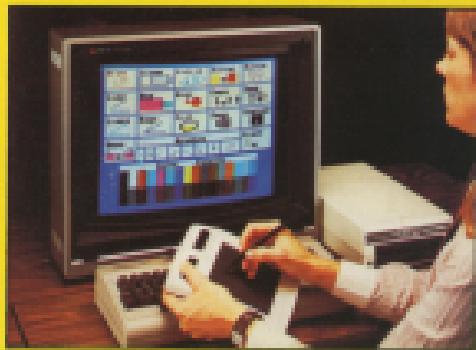
1. Straight Race 2. Obstacle Race 3. Wheelie
4. Long Jump 5. High Jump 6. Bumper Bag



KoalaPad TouchTablet

36
DUNES
DRIVE

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- Paint lines with a mouse
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- Make frames
- Draw circles
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- Move objects around
- Copy shapes
- Create mirror images
- Zoom in on areas
- Swap shapes between two pictures
- Save your pictures to disk or paper

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Now you don't have to be an experienced programmer to produce your high resolution graphics on your computer - the KoalaPad from Audiogenics makes it as easy as a pencil and paper. Just picture it!

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